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(*Continued on Inside Back Cover*)

THE JOURNAL OF
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A STUDY OF SOCIAL CLASS MOTIVATION: RELATIONSHIPS BETWEEN ANXIETY FOR EDUCATION AND CERTAIN SOCIO-ECONOMIC AND INTELLECTUAL VARIABLES*

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THE PROBLEM

American education is selective by social class. There is a significant correlation between school achievement and socio-economic status even when test intelligence is partialed out. Also, children in the lower socio-economic levels tend to drop out of school at an early age; participation in extra-curricular activities is associated with socio-economic status; few from the lower classes attend college; the high-school curriculum selected is determined to an extent by social class.

Some of the causes of these inequalities in opportunity are apparent. There are differences in language facility, in dress, in experience background, in recreational facilities, and in spending money. The ways in which these factors affect individuals psychologically are not well established. It is known that pupils of equal intellectual ability but different social status may grow up to assume disparate rôles. Little is known, however, about differences in the rôles students of different socio-economic background aspire to or expect to play. Differences in motives, goals, and attitudes have, for the most part, been discussed in terms of common observation. Experimental data are almost entirely lacking. The concept of 'socialized anxiety' has been proposed,[6] but there has been little empirical evidence

* This is a partial report of the writer's doctoral thesis.[1] Thanks are due Professor J. B. Stroud of the State University of Iowa for his many valuable suggestions during the course of the study.

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bearing upon the nature of this anxiety, particularly as it affects education.

This paper reports an investigation of the relationship between anxiety for education, as reflected by certain attitudes and aspirations, and a number of socio-economic, intellectual, and achievement factors. The investigation seeks to determine the nature of the differences in social and economic expectations of pupils who represent different socio-economic groups, and differences in their attitudes toward education.

The acquisition of an education, formal and informal, is a common endeavor about which strong feelings develop. Because extent and quality of education are used as standards by which individuals are evaluated by each other, it is a field in which anxiety motives come into play. Education is also recognized as necessary for the fulfillment of socio-economic aspirations and expectations. The educational goals of a person are probably seldom unrelated to these socio-economic goals. The term anxiety for education is not used here in any rigorous sense. It is conceived of as including the affective evaluation of an education in its broadest sense, and the level of expected attainment of those socio-economic goals which are largely dependent upon education.

THE MEASURING INSTRUMENTS

1. *Socio-Economic Status.*—The scale for measuring socio-economic status consisted of a modified *Sims Score Card.* Items which were dated or highly subjective were eliminated and additions were made on the basis of the research of other investigators, particularly that of Leahy[3] and Warner.[7] Separate subscores for father's occupation and mid-parent education were secured.

2. *Attitude Toward Education.*—Several scales for measuring attitude toward education were available but none were considered satisfactory for the purposes of the present investigation, particularly since the emphasis was to be on the student's opinion as to the value of an education rather than on his attitude toward the educational practices of the school which he was attending. An original scale, designed for this purpose, was constructed by the method of summated ratings.

The first step was to secure a large number of statements about

the value of an education, approximately half of which were favorable and half unfavorable. From an original compilation of one hundred seventy such statements, fifty were selected for further refinement. Twenty-five multiple-choice items were also prepared, with an attempt being made to select for consideration by the student situations in life which reflect the value placed upon education.

In order to secure data for further item improvement, opinions as to the validity of each item were obtained from twenty-eight educators representing a variety of experiences and interests who sorted cards bearing the items into five piles. Opinions regarding the two types of items were treated separately. Median ratings and inter-quartile range values were computed from ogives. Surviving this treatment were forty statements and seventeen multiple-choice items. These comprised a tryout scale. The following is a sample of each type of item:

Two additional years of school should be added on to the high school to provide more training for anyone who wants it.
Strongly Agree Agree Undecided Disagree Strongly Disagree
Which of the following best states what you think about the value of a high school education?

(a) Going to high school is almost a necessity if a person is going to be able to solve his everyday problems well.
(b) Going to high school is a big advantage but it is not necessary for being a success.
(c) Going to high school is all right for some people, but it would be a waste of time for many.
(d) Only those people who make the very best grades in the elementary school should go to high school.
(e) Going to high school is a waste of time for most people.

The fifty-seven item tryout scale was administered to two hundred thirty-one boys and two hundred eleven girls in Grades VIII, IX, and X of two fairly large representative school systems. For purposes of item analysis, indices of internal consistency were computed separately by sexes. The index of discrimination used was the difference between the means of the high and low twenty-seven per cent of the distributions. The indices thus obtained were used in conjunction with other criteria (particularly validity judgments and variety of content) to select items for the final survey form. On the basis of tryout data, the predicted split-

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halves within-schools reliability coefficient for the forty-six item attitude scale used in the final survey was .90.

3. *Socio-Economic Expectation.*—The scale of socio-economic expectation was made up primarily of multiple-choice items, although several variations in form were used. The items pertained to expected participation in social and community life, expected residential areas and types of residences, expected income and home conveniences, expected extent of formal schooling, and expected occupation. Also called for was a free expression of occupational expectation. Directions were worded in such a way as to call for a prediction of what the subject actually expected of the future, rather than what he would choose or prefer.

Two tryout forms, one for boys and one for girls, consisted of forty-two items each. Some of the items were arbitrarily assigned a heavier weighting than others. They were administered to the same tryout sample as that used for the attitude toward education scale as a part of the same unsigned inventory. Item analysis data were computed independently for each sex. The revision which followed resulted in separate forms for boys and girls consisting of twenty-five items each which were administered in the investigation. Three scores were derived from this scale, an over-all score of socio-economic expectation, and two subscores, one of occupational expectation and one of educational expectation.

The assigning of numerical values to the expected occupations presented a special problem. The only available occupational scales were those in which ratings were assigned either on the basis of census class or intelligence required in the performance of the occupation. Other investigators had secured rankings of a few selected male occupations on the basis of prestige, but the selection of occupations appeared quite arbitrary and the method of scaling which was employed failed to distinguish between occupations close together and far apart in prestige. Two new scales, one for men and one for women, were therefore constructed so that expected occupations could be assigned scores according to the prestige accorded those occupations.

The method of equal-appearing intervals was used in the derivation of these subscales. The first step was a listing of all occupational titles by census class from the 1940 census, in which

more than 50,000 men or 10,000 women were engaged. Occupations selected for the scales were made representative of the census distribution by consulting the percentages of employed white persons actually engaged in these occupational divisions in the United States and Iowa in 1940. Specific job-titles were assigned to each, together with short descriptive phrases originating from information supplied in the *Dictionary of Occupational Titles*. The one hundred forty male occupational titles and seventy-six female occupational titles thus selected were submitted on separate sets of cards to members of a class in educational psychology for sorting on the basis of estimation of the prestige accorded them by the American public. Male occupational titles were sorted by eighty men students and female titles by one hundred women students. Eleven equal-appearing intervals were used for each scale. The distribution of assigned values for each of the occupations was determined and the resulting ogives plotted. The final scale value assigned to each of the occupation titles was the median of the distribution. The difference between the first and third quartiles was computed as a measure of dispersion. This scaling procedure resulted in two eleven-point scales of occupational prestige, one for male occupations and one for female occupations. These were used to score the occupational expectation items and assign prestige values to father's occupation responses in the socio-economic status scale.

4. *Measures of Ability and Achievement.*—One of the major purposes of the investigation was to study the relative effects of socio-economic factors and intellectual factors upon attitudes toward education and level of socio-economic expectation. Scores on the *Iowa Tests of Educational Development* were available for a major proportion of the subjects from the results of the annual state-wide testing program. The composite score used in the analysis is an over-all measure of general educational development and has been widely used as a measure of academic aptitude. Recently obtained intelligence quotients were available from school records.

CHARACTERISTICS OF THE SAMPLE

The scales used in the investigation were administered by the writer to all ninth-grade students in attendance on the day of testing in the four six-year high schools of Cedar Rapids, Iowa.

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Of six hundred ten students tested, the papers of seventeen were discarded, either because of a large number of omitted items or failure to follow instructions.

The final survey form consisted of two sections, one signed and one unsigned, stapled separately, and coded for matching by placing numbers under the staples. In an attempt to obtain a favorable general set, the cover page indicated the questionnaire to be a survey of the Iowa Association for Opinion Research. An overview of the organization of the form was given, the first section being represented as a means of obtaining information about a cross section of Iowa high-school students, the second purported to obtain opinion about the educational system and information about what students expected of the future. The assurance was given that the papers would not be available to teachers and principals for examination.

Part I was made up of a cover page with general instructions, the personal information blank, and the scale for measuring socio-economic status. Part II was made up of the scales for measuring attitude toward education and socio-economic expectation. A single score was obtained from the attitude scale, while a composite score and two subscores representing educational expectation and occupational expectation were obtained from the socio-economic expectation scale.

The raw-score scales for socio-economic status, attitude toward education, and socio-economic expectation were converted to normalized standard-score scales, with means of fifteen and standard deviations of five, on the basis of the results of administering the final survey form. This was accomplished by tabulating the raw-score frequencies, computing percentile ranks, plotting the ogives on arithmetic probability paper, and making conversions by area transformation. Single distributions were made for the socio-economic status and attitude scores, but separate distributions were made for boys' and girls' expectation scores.

RESULTS

A correlation analysis was employed to study relationships among the following variables: (1) prestige of father's occupation; (2) mid-parent education; (3) socio-economic status, [includes (1) and (2)]; (4) attitude toward education; (5) occupational

expectation; (6) educational expectation; (7) socio-economic expectation, [includes (5) and (6)]; (8) ITED composite; and (9) test intelligence.

The results for boys and girls were analyzed separately. For each relationship studied, correlation coefficients were computed both for within-schools and for all schools combined. The within-schools correlation was obtained to give a coefficient which could be interpreted as the average of correlations found in separate schools or as equivalent to that which would have been found had all pupils been taken from a single school. This was accomplished through analysis of covariance procedures by analyzing the total sums of squares of both variables into their between-schools and within-schools components and computing the within-schools correlation from the sums of squares and products for within-schools.

The within-schools correlations are often to be preferred to those obtained by combining the scores of students into a single sample, in that the effects of differences in school means are eliminated. There are, however, some difficulties in interpretation involved. In the first place, the schools in the sample are so located that each serves a particular type of residential area. Two of these schools serve working-class families almost exclusively. This makes the sample for these two schools a fairly homogeneous one with respect to socio-economic status, and would give correlations to be expected in working-class communities rather than in a sample representing all levels of socio-economic status. On the other hand, pupils in attendance at the other two schools represented homes much more variable in socio-economic status and higher correlations are to be expected because of greater variability. This creates ambiguity in interpretation in that the four schools differ in the degree to which they are representative of the population.

For the above reasons, it is likely that the correlations based on the total sample are probably as valid estimates of the relationships as are the within-schools values, although neither may be interpreted without ambiguity. It is suggested that when certain variables are involved which would likely be affected by school morale, effectiveness of teaching, or effectiveness of other school services (such as vocational guidance), that the within-

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schools correlations be preferred; but that when socio-economic status or one of its components is one of the variables, the within-schools correlation be interpreted with caution.

Inter-correlations between measures of socio-economic status and socio-economic expectation are shown in Table I. It will be observed that the correlations between the total scores are

TABLE I.—INTERCORRELATIONS BETWEEN MEASURES OF SOCIO-ECONOMIC STATUS AND MEASURES OF SOCIO-ECONOMIC EXPECTATION

			Socio-economic expectation	Occupational expectation	Educational expectation
Socio-economic Status	Boys	Total sample	.63	.54	.51
	Boys	Within-schools	.57	.48	.45
	Girls	Total sample	.61	.49	.37
	Girls	Within-schools	.57	.45	.29
Father's Occupation	Boys	Total sample	.57	.54	.46
	Boys	Within-schools	.52	.49	.41
	Girls	Total sample	.55	.43	.41
	Girls	Within-schools	.51	.40	.35
Mid-parent Education	Boys	Total sample	.53	.47	.44
	Boys	Within-schools	.45	.40	.38
	Girls	Total sample	.52	.42	.43
	Girls	Within-schools	.46	.39	.36

somewhat higher than those generally reported between socio-economic status and other variables. The somewhat lower correlations for girls than boys, especially those involving occupational expectation, were to be expected. The stenographic and housewife occupations were chosen very frequently by girls of all socio-economic levels, while the distribution of prestige values of expected male occupations was much more variable.

In any relationship involving socio-economic status, there is nearly always the question of the part that intelligence plays in that relationship. In the present study the question is an

important one; if the relationship between socio-economic status and level of expectation can be explained in terms of the common relationship with the intelligence variable, then expectation would vary with ability and there would be no particular social

TABLE II.—INTERCORRELATIONS AMONG SOCIO-ECONOMIC STATUS, INTELLIGENCE QUOTIENTS, ITED COMPOSITE, AND SOCIO-ECONOMIC EXPECTATION

			Socio-economic Status	IQ	ITED Comp.	Socio-economic Expectation
Socio-economic Status	Boys	Total-sample	...	.38	.31	.63
	Boys	Within-schools	...	.32	.26	.57
	Girls	Total-sample	...	.39	.36	.61
	Girls	Within-schools	...	.26	.35	.57
IQ	Boys	Total-sample	.38	...	.80	.41
	Boys	Within-schools	.32	...	.80	.37
	Girls	Total-sample	.39	...	.78	.36
	Girls	Within-schools	.26	...	.78	.30
ITED Composite	Boys	Total-sample	.31	.80	...	.42
	Boys	Within-schools	.26	.80	...	.42
	Girls	Total-sample	.36	.78	...	.29
	Girls	Within-schools	.35	.78	...	.29
Socio-economic Expectation	Boys	Total-sample	.63	.41	.42	
	Boys	Within-schools	.57	.37	.42	
	Girls	Total-sample	.61	.36	.29	
	Girls	Within-schools	.57	.30	.29	

problem. On the other hand, if socio-economic status is a better predictor of expectation than is intelligence, and if intelligence contributes but little of the common variance, then a definite social problem exists.

Table II shows the inter-relationships among these variables. The evidence indicates that socio-economic status is a considerably better predictor of expectation than is ability, as measured by

standard group intelligence tests, or level of educational achievement as measured by the *Iowa Tests of Educational Development.*

Some further information was gained from the inter-correlations by applying partial correlation techniques to the data. Zero order correlations were computed for the schools in which intelligence test scores were available. These were then used in computing partial correlations between socio-economic status and expectation, with test intelligence as the control variable. The results were as follows:

Boys, total sample; partial r—.52
Boys, within-schools; partial r—.46
Girls, total sample; partial r—.53
Girls, within-schools; partial r—.55

Partial correlations are always difficult to interpret at best, and especially so because intelligence is an integral part of socio-economic status as it is usually conceived The size of the partial r's in comparison with the zero order r's is a good indication, however, that test intelligence is responsible for a relatively minor portion of the relationship between socio-economic status and level of socio-economic expectation.

The relationships between socio-economic status and attitude toward education were of about the same magnitude as those between test intelligence and attitude toward education, with rather large school differences. The correlations are shown in Table III.

The relatively low correlations do not lend strong support to the hypothesis of a close relationship between socio-economic factors and attitude, yet the relationships are at least as high as those of social attitudes with other variables found by most other investigators.[4,5] Murphy and Newcomb[4] have suggested reasons for relatively low relationships between socio-economic status and social attitudes and conclude: "In view of the complicated network of influences responsible for attitude formation, it seems positively *naïve* to expect to find simple correlations between socio-economic status and a particular attitude." (p. 1015)

Hollingshead's[2] data indicate a curvilinear relationship between social class and attitudes toward education as a requisite to success.

The relatively higher correlations between attitude toward education and level of expectation, particularly educational expectation, offer opportunity for speculation. Part of the relationship may be due to the similarity in answers called for in the two parts of the survey, particularly in that both scales were administered in the same period. An attempt was made to minimize this by using an unsigned questionnaire and constantly

TABLE III.—RELATIONSHIPS BETWEEN ATTITUDE TOWARD EDUCATION AND OTHER VARIABLES

	Attitude Toward Education			
	Boys Total-Sample	Boys Within-Schools	Girls Total-Sample	Girls Within-Schools
Socio-economic Status	.28	.24	.29	.30
Mid-parent Education	.22	.18	.22	.25
Father's Occupation	.15	.13	.16	.18
Test Intelligence	.29	.27	.24	.30
ITED Composite	.33	.33	.39	.39
Socio-economic Expectation	.49	.48	.47	.49
Educational Expectation	.49	.48	.41	.42
Occupational Expectation	.34	.32	.36	.35

emphasizing 'actual expectation' in the directions for responding to the latter scale. The item asking for expected occupation to be engaged in, for example, was preceded by a free-response item (which was not scored) on the occupation a subject would choose if there were no practical limitations. It was felt that this would focus attention on the purpose of the expectation item. (The *r* between prestige scores assigned to the occupational choice and expectation items was .68.)

A sizeable relationship between attitude toward education and level of socio-economic expectation provides some evidence for considering them together as an indication of anxiety for education. They have not been combined into a single score because there is no criterion for validating such a procedure. The moderately high relationships between these variables and composite scores on the ITED suggest that they are involved to

a marked degree in the selective processes of our educational system.

SUMMARY AND CONCLUSIONS

Scales for measuring socio-economic status, attitude toward education, and level of socio-economic expectation were administered to six hundred ten ninth-grade students of the four six-year high schools in a midwestern city. Composite scores on the *Iowa Tests of Educational Development* and intelligence quotients were available from school records for a major portion of the sample. The results were analyzed separately for boys and girls. Analysis of covariance procedures were used in securing within-schools correlations as well as those for the total sample.

Some of the conclusions which seem to be warranted by the results are as follows:

1) Socio-economic status is more closely related to the level of socio-economic expectation than is test intelligence. This is evidenced by obtained correlation coefficients of .63 and .61 between socio-economic status and expectation for boys and girls, respectively, and values of .41 and .36 between test intelligence and expectation. Partial correlations between socio-economic status and expectation, with test intelligence as the control variable, were .52 and .53 for boys and girls, respectively.

2) The relationship between socio-economic status and attitude toward education, as measured by the scale used in the present investigation, is of about the same magnitude as the correlation between test intelligence and attitude. The obtained *r*'s were in the neighborhood of .30.

3) Correlations of approximately .50 between socio-economic expectation and attitude toward education, and moderately high correlations between these variables and composite scores on the *Iowa Tests of Educational Development*, all of which are correlates of socio-economic status, provide empirical evidence which supports the hypothesis that socialized anxiety is a factor in the selective processes of American education.

BIBLIOGRAPHY

1) A. N. Hieronymus. *Relationships Between Anxiety for Education and Certain Socio-Economic Variables.* Ph.D. Thesis, State University of Iowa, 1948. (Unpublished)

2) A. B. Hollingshead. *Elmtown's Youth.* New York: John Wiley and Sons, 1949, pp. 83–120.

3) Alice M. Leahy. *The Measurement of Urban Home Environment.* Monograph No. XI, University of Minnesota Institute of Child Welfare. Minneapolis: University of Minnesota Press, 1936, pp. 70.

4) G. Murphy, L. B. Murphy, and T. M. Newcomb. *Experimental Social Psychology.* New York: Harper and Brothers, 1937, pp. 889–1046.

5) E. Nelson. "Attitudes: I. Their Nature and Development; II. Social Attitudes; III. Their Measurement," *Journal of General Psychology.* Vol. XXI, 1939, pp. 367–436.

6) J. B. Stroud. *Psychology in Education.* New York: Longmans, Green and Company, 1946, pp. 21–22.

7) W. L. Warner, M. Meeker, and K. Eells. *Social Class in America.* Chicago: Science Research Associates, 1949, pp. 274.

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THE GEO-ETHNIC PREFERENCE INVENTORY: WORLD CULTURES AND AUTISTIC THINKING

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I. INTRODUCTION

The purpose of this study is to measure subjects' perceptions of the cultures of the world. This is part of a program designed to measure the variables influencing international tensions and understanding.

The stimuli for this study come from the fields of philosophy, general semantics, and social psychology.

In F. S. C. Northrop's *The Meeting of East and West*[5] we find this statement of the philosophy of cultural pluralism: "These diverse philosophical conceptions fall into two groups: those which differ because they refer to different factors in the nature of things, and those which conflict because they are offering contradictory things of the same factor. The philosophy of the Orient with its attention upon things in their aesthetic immediacy in contrast with the philosophy of the West with its emphasis upon the theoretically designated and inferred factor in things exemplifies the first group; the medieval and modern worlds or traditional communistic and democratic economic and political theory are instances of the second."

S. I. Hayakawa in his recent book *Language in Thought and Action*[2] carries this thesis a step further by stating: " . . . the two-valued orientation . . . . may be regarded as an inevitable accompaniment to combat. . . . The trouble with such thought, of course, is that there is never any way of evaluating any new experience, process, or object . . . . (for) They have in their language no means of progressing towards new evaluations, since all things are viewed only in terms of two sets of values."

Eugene Hartley[1] in *Problems in Prejudice*, has used a series of Bogardus-type scales to study the perceived relationships among various cultures. He reports: "Our hypothesis is that such tolerance represents to a significant extent a function of the persons responding, rather than of the groups responded to." Farther on he suggests: " . . . individuals who consider members of different national and religious groups similar tend toward tolerance."

T. E. Newcomb[4] has reviewed Hartley's study and others and has these comments to make: "Correlations of scores of social distance toward these three groups (Danireans, Pireneans, and Wallonians) correlated consistently about .8 with social distance toward the other thirty-two groups, among five sets of subjects. Examination of these regression lines, moreover, shows uniformly that those extremely hostile to the non-existing groups were also extremely hostile in total score of attitude toward the other thirty-two groups, and *vice versa;* apparently there were no exceptions at all. For these hostile individuals, in short, to know that a strange group existed (or so they supposed) was to take a hostile attitude toward members of that group."

These are some of the data which have led Newcomb to hypothesize that: " . . . the likelihood that a persistently hostile attitude will develop varies with the degree to which the perceived inter-personal relationship remains autistic, its privacy maintained by some sort of barriers to communication."

With these studies in mind the following hypotheses were raised for this research:

1) If Northrop's hypothesis is valid, then differences in the perception of the world's cultures will be along a continuum from America and Europe on the one hand to Central and Eastern Asia on the other. The Soviet Russian culture will not fall opposite the Anglo-American, but lie somewhere between the latter and Asia.

2) If Hayakawa's thesis is fruitful, then an experimental design which presents a multi-valued world will be perceived as multi-valued. As a corollary we may add that those cultures which upon investigation appear to be polar to each other will be the same cultures which are most hostile toward each other today.

3) If Hartley's study is definitive, then we may expect differences in perception due to the selection of a different population. Furthermore, if a culture differs from the subject's culture, we may expect a gradient of increasing hostility or intolerance from those cultures closest to one's own through those most different.

4) Newcomb's hypothesis might be included under Hartley's as well as the one now offered. If Newcomb's hypothesis is valid, then we might expect the imaginary culture to be identified among those cultures most inversely related to one's own; i.e.,

the imaginary culture will be polar to the subject's own culture, indicating autism and accompanying hostility.

II. METHOD AND INSTRUMENT

The measuring instrument used in this study was a verbal preference inventory. The basic pattern of the inventory was adapted from *Kuder's Preference Record*[3] with the author's permission. The peoples of the world were classified into nine geographic-ethnic areas as indicated in Table I. A tenth, Imaginary, area was added as a measure of autism.

TABLE I.—THE TEN GEO-ETHNIC CULTURE AREAS USED IN THIS INVENTORY

A. Anglo-Saxon, United States, British Commonwealth	F. Negro African
B. Hindic, Southeastern Asian	G. German, Scandinavian
C. Semitic, Arabic, Hebraic	H. Sinic, Japanese
D. Latin American	I. Slavic, Eastern European
E. Latin European	J. Imaginary

Four attributes of these cultural areas were used to elicit preference responses: nations, regions, rivers, and cities. Items within each group were homogeneous geographically, and were placed randomly throughout the inventory. (See Table II)

TABLE II.—FOUR SAMPLE ITEM GROUPS USED IN THE INVENTORY

Nations	Regions	Rivers	Cities
a. China (H)	a. Broszk (J)	a. Zakolo (J)	a. Natal (F)
b. Peru (D)	b. Punjab (C)	b. Volga (I)	b. Stockholm (G)
c. Scotland (A)	c. Prussia (G)	c. La Plata (D)	c. Alexandria (C)

A total of one hundred groups of three items each appeared on this test. For each group of three items the subject indicated his first and last choices. In scoring the test the first choice in each group was assigned a weight of three, the second choice two, and the third one. Each group was analysed by comparing the high and low scorers within each of the ten subtests. Those items which did not discriminate were discarded. For final scoring thirty groups of items remained, a total of nine

items for each of the ten cultures. The subjects for this study were one hundred twenty-four college students.

III. RESULTS

Reliability was studied by the test—re-test method. The scores of the subjects on the test and re-test were correlated. The coefficients of correlation are given in Table III.

TABLE III.—THE COEFFICIENTS OF RELIABILITY OF THE CORRELATIONS BETWEEN THE RAW SCORES ON THE TEST AND THE RE-TEST

A	B	C	D	E	F	G	H	I	J
.72	.54	.46	.48	.48	.51	.67	.63	.46	.42

The intercorrelations among the subtests were determined. They ranged from −.56 (A-H) to .34 (A-E). The intercorrelations among these variables on the re-test were highly similar. (See Table IV)

TABLE IV.—MATRICES OF INTERCORRELATIONS OF THE RAW SCORES ON EACH SUBTEST

TEST	A	B	C	D	E	F	G	H	I	J
A		−.22	−.22	−.23	.34	−.45	.18	−.56	−.21	.22
B			.23	−.15	−.40	−.09	−.20	.22	.08	−.30
C				.02	−.23	.00	−.48	.24	−.11	−.30
D					.09	.04	−.14	−.08	−.10	−.19
E						−.19	.13	−.54	−.19	.13
F							−.25	.23	.00	−.13
G								−.39	−.18	.20
H									.08	−.30
I										−.30
J										

RE-TEST	A	B	C	D	E	F	G	H	I	J
A		−.22	−.16	−.15	.17	−.32	.10	−.51	−.22	.23
B			.25	−.13	−.33	.01	−.39	.28	.00	−.20
C				.04	−.23	.17	−.45	.11	−.11	−.30
D					.12	−.04	−.14	−.21	−.23	−.14
E						−.26	.35	−.48	−.11	.16
F							−.18	.21	−.10	−.20
G								−.34	−.05	.24
H									.20	−.40
I										−.24
J										

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The group centroid method of factor analysis[6] was used to study the relationships among the ten cultural variables. This was deemed important in light of the reliability coefficients, and the similarity among the intercorrelations on the test and re-test. The unrotated factor matrix is given in Table V.

TABLE V.—FACTOR MATRIX OF THE FOUR FACTORS OBTAINED BY THE GROUP CENTROID METHOD (UNROTATED)

	1	2	3	4
A	−.645	.340	−.242	.170
B	.441	−.009	−.134	.285
C	.511	.523	−.039	−.032
D	.070	.068	.438	−.185
E	−.587	.229	.338	−.147
F	.378	−.282	.091	−.382
G	−.542	−.330	−.126	.014
H	.714	−.116	−.202	−.131
I	.218	−.237	.094	.359
J	−.441	−.032	−.342	−.333

IV. DISCUSSION

Test reliability.—The correlation coefficients which indicate the relationships between the subjects' raw scores on the test and re-test fall between .42 (J) and .72 (A). The intercorrelation matrices are very similar, however. The factor analysis gives some indication about the relatively low reliability coefficients. It must be acknowledged that although individuals' ideas may change, the cultures may shift, and the items may not prove to be similar throughout the test, probably the greatest reason for low reliability is the clustering of the variables into factors. Therefore, the subjects may shift from one subtest to another, but stay within the same factor while making their preference selections.

Factor analysis.—Four factors are indicated by the group centroid factor analysis. These factors appear in the unrotated matrix in Table V.

1) The first factor might be designated as discriminating the major 'world outlooks.' We may call this factor one of *Weltanschauung*. In one cluster we find the Anglo-American, Latin

European, German-Scandinavian, and Imaginary cultures, and in the other the Hindic, Semitic, Sinic, and African. The various differences between these clusters include caste and class, religion, perceived 'racial' differences, etc.

2) The second factor appears to be one of 'monotheism.' In one cluster we find the Anglo-American, Semitic, and Latin European cultures, and in the other the African, German-Scandinavian, and Slavic. It might be well to qualify this by considering the former cluster as the one which has been more firmly rooted in these traditions, whereas the cultures of the second cluster have been late-comers to the monotheistic fold, if they have come at all.

3) Thirdly, we have the 'Latin' factor comprised of the two major areas of the Latin world as compared with the Anglo-American and Imaginary group. The major components of this factor may be Roman Catholicism, statism with tendencies toward central control, political instability in the form of revolution, differences in sex morals, etc.

4) Finally, the fourth factor might be described as a 'fantasy' factor. The cultures concerned in this plane are two about which we have much information which tends to be highly autistic, (Hindic and Slavic), and two about which we know very little extensionally, (Africa and Imaginary).

These are the suggested interpretations of the four factors found in this study. Further research with different populations may indicate more or different factors.

Hypotheses.—We may now turn to the hypotheses upon which this study has been based, and see to what extent they have been verified.

1) If Northrop's hypothesis were valid, then the cultures would cluster around Anglo-Western Europe and Asia with the Slavic culture falling somewhere in between. These two phenomena are supported by the data indicated in the first factor.

2) If Hayakawa's thesis were to hold, then an experiment which presents a multi-ordinal design should receive multi-ordinal results. The distinctness of the various cultures supports this hypothesis.

However, the corollary that those cultures polar to each other are also the ones most hostile to each other requires further investigation. If we may take the current 'cold war' as an

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indication of hostility, then we should expect a bi-polar division between Anglo-America and the Slavic culture. Such a picture does not appear.

3) Should Hartley's interpretation be correct, there should be significant differences between his study and this one because of the differences in time and in sample population. However, the rank order correlation between Hartley's cultures and those on the GEPI, omitting the non-comparable United States Negro and the African Negro, is .784. Secondly, hostility should increase directly with social distance, but this does not appear to be the case. We may again refer to the 'cold war' and find that the cultures most distant from that of the subjects are not those against which most of the hostility is being directed.

4) If Newcomb's hypothesis were valid, we would expect the imaginary culture to be polar to the United States. Instead it appears frequently in the Anglo-American cluster, (factors 1 and 3), and once, (in factor 4) polar to the Soviet culture.

Although the results of this study have not corroborated all of the hypotheses which were posited when this research was begun, we may feel that the hypotheses have been quite fruitful. Perhaps the results may serve to qualify rather than to contradict these theses.

Some hypotheses which arise from these results are as follows:

a) The imaginary culture may be expected to fall in the cluster closest to the self or most polar from the self.

b) Hostility toward the imaginary culture will also tend to be polarized.

c) Bi-polarity, major cultural difference, or great social distance is not a sufficient condition for the expression of hostility.

These hypotheses do not attempt to explain the phenomena which have been studied in this experiment. However, an indication toward such an explanation may be made. The major point of difficulty seems to arise in the relationship between social or cultural distance and the expression of hostility. We may find, for instance, that one of the significant 'barriers to communication' is autism in the communication itself.

The general hypothesis I should like to offer may be stated as follows:

> Cultures may be distributed along a J-shaped gradient of social distance with the origin at one's self or own group.

When the curve reaches a certain rate of acceleration we will find the strongest expression of hostility. Beyond this rate hostility will not be expressed to such a degree. Aggression against the groups prior to this point of acceleration is actively inhibited by the similarity of cultural tradition and by the active threat of in-group or self punishment, whereas the influence inhibiting aggression toward the groups past this point of acceleration is their falling outside of the subjects' psychological field.

Such a hypothesis should be amenable to test by laboratory experiment and field research. The particular formula for the point at which the important rate of acceleration is reached remains to be worked out.

V. SUMMARY AND CONCLUSIONS

1) A verbal inventory of one hundred questions was made. Each question was composed of three items. Each item represented a different geo-ethnic culture. The subject ranked the three items on the basis of his preference. He also indicated items he had not heard of previously. The nine geo-ethnic cultures were: African (Negro), Anglo-American, Germanic-Scandinavian, Hindic-Southeast Asian, Islamic-Hebraic, Latin American, Latin European, Sinic, Slavic, and a fictitious culture.

2) The test was administered to one hundred twenty-four college students. The data and discussion refer to this group. Reliability was computed by the test-retest method for each subtest. The reliability coefficients ranged from .42 to .72.

3) Although the cultures are distinct from each other, there is sufficient clustering to affect the reliability.

4) The four hypotheses upon which this study was based are discussed, and an attempt is made to draw them together in a new statement. This hypothesis is designed to synthesize the study of hostility and social distance.

5) This method is suggested as fruitful for the analysis of attitudes toward world cultures and the inter-relationships among them.

BIBLIOGRAPHY

1) E. L. Hartley. *Problems in Prejudice*, New York: King's Crown Press, 1946.

UNIVERSITY OF CALIFORNIA LIBRARIES

2) S. I. Hayakawa. *Language in Thought and Action*, New York: Harcourt Brace and Co. 1949; pp. 222–234.

3) G. F. Kuder. *Kuder Preference Record*, Form BB, Chicago: Science Research Associates, 1942.

4) T. M. Newcomb. "Autistic Hostility and Social Reality," *Human Relations*, 1947, 1, 69–86.

5) F. S. C. Northrop. *The Meeting of East and West*, New York: Macmillan Co., 1947.

6) L. L. Thurstone. *Multiple Factor Analysis*, Chicago: University of Chicago Press, 1947.

INTELLIGENCE OF COLLEGE WOMEN AS RELATED TO FAMILY SIZE

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INTRODUCTION

A number of writers have been concerned with a possible decline of intelligence in the British and American populations as evidenced by the presence of a small but consistently negative correlation between intelligence as measured by tests and size of family. Testing relatively large unselected groups of school children Bradford,[11] Chapman and Wiggins,[11] Lentz,[9] Cattell,[7] Fraser Roberts, Norman, and Griffiths,[7] Moshinsky,[10] and Burt,[2,3] have obtained correlations from −.19 to −.33 between intelligence and number of children in the family. In certain instances where special groups were tested, as the gifted by Terman[13] and those from a slum clearance area by Dawson,[4] the obtained correlations were within this range. However lower negative correlations were generally obtained with the highly selected groups, such as the coal miners' children (Sutherland[12]), special groups of private, preparatory, and secondary fee-paying children (Fraser Roberts *et al.*,[7] Moshinsky[10]), and college students (Himmelweit[8]).*

In Himmelweit's study, four hundred fifty British-born men and women students at one of the colleges of the University of London were tested by eight verbal and non-verbal tests adapted from Thurstone's Primary Mental Abilities Tests, Thorndike's CAVD, and the N.I.I.P. Clerical Test. Fifty-nine per cent of the students had fathers in the professions or managerial positions, as opposed to twenty-two per cent whose fathers were skilled or unskilled laborers. The correlation of −.13 between the composite score on the eight tests and size of family was interpreted by Himmelweit as lending no support to the thesis that the negative correlations obtained in previous inquiries could be

* Witty, however, found the mean IQ of a small group of 'intermediate' children in two high schools of Chicago to be almost identical with that of a small group of 'only' children attending the same high schools.

explained in terms of differences in opportunity for acquiring the ability necessary to do intelligence tests. "It suggests rather that there is a slight tendency for a group comprised of members of large families even in a highly selected sample to contain a higher percentage of persons of somewhat lower intelligence than is found in groups recruited from smaller families." Some factors which she mentions as possibly being responsible for this tendency include delayed marriage of the more intelligent parents, a longer period between marriage and first conception among the more intelligent parents, and differences in desire for larger families. The latter factor might be due to the wider outside interests of more intelligent wives or due to the possibility that more intelligent parents may limit their families more rigidly to ensure a higher standard of educational and other opportunities for their children.

PROCEDURE

The purpose of the present study was primarily to determine whether or not there is a connection between intelligence and number of siblings in a family among American college women of good socio-economic status and better than average college ability. The subjects included 2261 white Randolph-Macon Woman's College freshmen of about eighteen years of age* who entered the college between 1939 and 1949. Forty-three of the total number tested were omitted either because they were residents of a foreign country or because their personal record cards were unavailable. The majority of the students, determined from a random sample of six hundred fifty-one record cards, were from the South, eighteen per cent were from the Border States, and twenty-three per cent from the North and West. Over ninety per cent of their grandparents were American-born, eight per cent were born in Northern Europe, and one and one-half per cent in Eastern or Southern Europe. The S's were predominantly Protestant in their religious preference (ninety-five per cent) with about an equal number Roman Catholic and Jewish and a very few of the Greek Orthodox

* Estimate based upon the freshmen class who entered the college in 1944. The mean age of this group was 17.8 with an SD of 0.42.

faith.* The fathers of our S's were almost exclusively in the higher occupational categories. Thirty-nine per cent were in the professions; twenty-two per cent were manufacturers, directors of corporations, financiers, and executives; thirty-three per cent were business or semi-professional men; five per cent were planters, farmers, and 'oil men'; and seven-tenths of one per cent were clerks and foremen. None were children of semi-skilled or unskilled laborers.* The cost of sending a daughter to the college, which, excluding expenditures for clothes, travel, recreation, and incidentals, ranged from $900 in 1939 to $1300 in 1949, is further indication of the good economic status of our S's. Even with the aid of scholarships and part-time college employment which is available for students above the freshman year, the cost would in general be prohibitive for people of average or low economic status.

The total gross score on the American Council Psychological Examination for College Freshmen was used as the criterion of general intelligence. During the period covered, the college has required all new students to take this test at a fixed time during the first month of residence. The students tested in 1939 were given the 1939 edition of the examination; those tested in 1940, the 1940 edition; . . . and those in 1949, the 1949 edition. All individual scores were transmuted into the equivalent scores of the 1943 edition. The mean score of the 2261 freshmen was 124.5, half of the students ranking above the 77th percentile on the published college norms.[18]

Family size in this study is taken to mean the number of living sibs; step- or half-sibs were excluded where they were so reported in the Personal Informational Blanks. Beginning with 1944 the Medical History Blanks include questions relating to the number of deceased brothers and sisters. An examination of a sample of 390 of these, taken alphabetically from the files, shows a total of thirty-five deceased sibs, or an average of 0.09 per student.† Inclusion of the deceased group would probably increase the average number of sibs born to the parents of our

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* Estimate based upon a random sample of 710 freshmen S's who entered the college between 1939–1942 and between 1947–1949.

† Twenty-three were reported as having died at birth or in infancy, seven in childhood (five–sixteen years), and five in World War II.

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total freshman group from 1.33 (average number of living sibs) to 1.42.

RESULTS

Table 1 gives the mean gross scores and standard deviations of the 2261 freshmen tested by the A. C. E. from 1939 to 1949 inclusive and grouped according to the number of siblings in the family. The number of sibs range from none to nine; since only eleven students had more than five siblings they are combined in one group. Except for the five-sibling group we find a slight but constant decline in mean score as the number of sibs increases. The mean of the S's without sibs is 125.43; those with one sib, 125.12; those with two, 123.76; with three, 122.01; with four,

TABLE 1.—MEAN GROSS SCORES AND STANDARD DEVIATIONS OF 2261 FRESHMEN TESTED BY THE A. C. E. FROM 1939 TO 1949 AND GROUPED ACCORDING TO NUMBER OF SIBLINGS IN FAMILY*

Siblings	N	Mean	SD
0	500	125.43	18.04
1	945	125.12	18.90
2	542	123.76	19.60
3	172	122.01	16.67
4	68	121.18	21.59
5	23	126.63	22.19
6–9	11	118.86	17.06
0–2	1987	124.82	18.92
3–9	274	122.07	18.58

* All individual scores were transmuted into equivalent scores for 1943.

121.18; and those with six to nine, 118.86. Contrary to the general trend, the mean of the twenty-three S's with five sibs was the highest of any group. The SD's range from 16.67 for the three-sib group to 22.19 for the five-sib group. None of the means were significantly higher than the others with two exceptions. Those without sibs and those with one sib were significantly higher than the S's with three sibs at the five per cent level of confidence. However, when the frequencies of the 0–1 sib groups were combined, their mean of 125.21 proved to be significantly higher at the two per cent level of confidence to

the mean of all S's with two or more sibs (123.20) and to the mean of all S's with three or more sibs (122.07). Similarly, the mean of the 0, 1, and 2-sibling groups (124.82) was significantly above the mean of those with three or more sibs at the five per cent level of confidence.

Among highly selected students such as we have tested, consequently, there appears to be a small but significant difference in intelligence favoring those S's from small families. While we have not compared the economic statuses of our small and large family groups it would seem that of necessity those from the larger families would not be in an unfavored position. Parents in moderate circumstances, with one or two children, might be able to send them to a private college such as this, whereas they would not be able to do so if under the same circumstances they had from three to ten offspring. In attempting to find an explanation for the differences obtained it occurred to us that young women with sisters who had attended or were attending Randolph-Macon Woman's College might be admitted to the college because of the relationship as well as a result of their own merits. In other words, there might possibly be lower standards for the admission of sibs of students or of alumnae. Further, the more sibs in a given family of a student the greater the probability that one of them had attended (or was attending) this college. From the alumnae records we found that 5.5 per cent of the one-sib group, 12.5 per cent of the two-sib group, 20.0 per cent of the three-sib group, and 25.5 per cent of the four-to-nine-sib group had one or more sibs who preceded them at the college.

In Table 2 are included the mean gross scores and standard deviations of the freshmen none of whom had sisters who had preceded them at the college and the mean gross scores and standard deviations of the one hundred eighty freshmen all of whom had sisters who had attended this college. The mean of the latter group was 122.56, or about two points below that of our total group of S's. While the mean of the one-sib group without Randolph-Macon sisters was below that of the corresponding group who had sibs at the college,—in the case of the two-sib group, the 1–2-sib, and the 3–9-sib groups—those having sibs who entered the college before them made lower mean A. C. E. scores than did comparable groups without sisters at

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the college.* With the elimination of the one hundred eighty cases who had sisters who preceded them at the college there still appears to be a small decrease in mean intelligence score as one proceeds from the 0-sib group to the 3–9-sib group. How-

TABLE 2.—MEAN GROSS SCORES AND STANDARD DEVIATIONS OF 2081 FRESHMEN NONE WITH SISTERS WHO HAD ENTERED RANDOLPH-MACON WOMAN'S COLLEGE BEFORE THEM COMPARED WITH THE MEAN SCORES AND STANDARD DEVIATIONS OF 180 FRESHMEN ALL OF WHOM HAD SISTERS WHO HAD ATTENDED THIS COLLEGE

Siblings	No Sib at R.-M. W. C.			One or More Sibs at R.-M. W. C.		
	N	Mean	SD	N	Mean	SD
0	500	125.43	18.04			
1	893	125.09	18.32	52	125.67	20.01
2	474	123.90	19.22	68	123.09	22.02
3–9	214	122.83	17.82	60	119.25	19.08
0–2	1867	124.88	18.65	120	124.21	21.21

ever, none of the differences between these means are significant at the five per cent level of confidence.

SUMMARY AND CONCLUSION

Two thousand two hundred sixty-one freshmen entering a woman's college between 1939 and 1949 inclusive were categorized according to number of siblings in the family and their mean A. C. E. scores compared. In comparison with the University of London students our freshmen were on the average: five years younger, included neither men nor ex-Service women, were of smaller families, and were of higher occupational status. Probably the two groups did not differ significantly in intelligence. In agreement with Himmelweit we found a tendency for S's

* None of these differences were significant at the five per cent level of confidence.

of the larger families to score somewhat below those of smaller families on the average. The mean score of all S's with one and no sibs proved to be significantly higher at the two per cent level of confidence to the mean of all S's with more than one sib and likewise to the mean of all S's with more than two sibs. Furthermore, the mean of those from the three smallest sib groups (0, 1, and 2) was significantly above the mean of all S's with three or more sibs at the five per cent level of confidence.

However, the elimination of the one hundred eighty S's, each of whom had one or more sisters who entered the college before them, resulted in their being no significant differences among any of the sib groups or among any combination of the groups. This was due in part to the slightly lower mean scores earned by young women whose sisters had preceded them and in part to the consequent decrease in the numbers of the larger family groups with the elimination of from twenty to twenty-five per cent of them. On the basis of this study, therefore, we conclude that there is no significant relationship between intelligence and family size among American college students of good or superior intelligence and socio-economic standing. At least we have no evidence of the existence of such relationship. We are in substantial agreement with the findings of Fraser Roberts, Norman and Griffiths,[7] who in discussing the relationship between intelligence and family size of a highly selected group of school children (mean sib number of 1.5), concluded: "We are tempted to suggest that these children, representing perhaps the highest five per cent of the population in social status, come from a section of the population within which differential fertility in regard to intelligence has practically ceased to operate, a group that has become stabilized, though at too low a level of fertility to secure its survival." (p. 212)

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REFERENCES

1) J. Blackburn, "Family size, intelligence score and social class." *Population Studies*, 1947–48, 1, 165–176.

2) C. Burt, "Family size, intelligence, and social class." *Population Studies*, 1947–48, 1, 177–186.

3) ———. "Intelligence and fertility." London: Eugenics Society, 1946, pp. 43.

4) S. Dawson, "Intelligence and fertility." *Brit. J. Psychol.*, 1932, 23, 42–51.

5) Educational Testing Service. "American Council on Education Psychological Examination for College Freshmen 1948 Edition." Princeton, N. J.

6) ———. "American Council on Education Psychological Examination for College Freshmen 1949 Edition." Princeton, N. J.

7) J. A. Fraser Roberts, R. M. Norman, and R. Griffiths. "Studies on a child population: III. Intelligence and family size." *Ann. Eugen.*, 1937–38, 8, 178–215.

8) H. T. Himmelweit. "Intelligence and size of family. Their relationship in an adult group of high educational standard." *Eugen. Rev.*, 1948–49, 40, 77–84.

9) T. Lentz, Jr. "Relation of IQ to size of family." *J. Educ. Psychol.*, 1927, 18, 486–500.

10) P. Moshinsky. "The correlation between fertility and intelligence within social classes." *Sociol. Rev.*, 1939, 31, 144–165.

11) A. M. Shuey. "Improvement in scores on the American Council Psychological Examination from freshman to senior year." *J. Educ. Psychol.* 1948, 39, 417–426.

12) H. E. G. Sutherland. "The relationship between IQ and size of family." *J. Educ. Psychol.*, 1929, 20, 81–90.

13) L. M. Terman *et alt.* *Genetic studies of genius: I. Mental and physical traits of a thousand gifted children.* Stanford Univ., Calif.: Stanford Univ. Press, 1925, p. 117.

14) G. H. Thomson. "The trend of national intelligence." *Eugen. Rev.*, 1946, 38, 9–18.

15) L. L. Thurstone and T. G. Thurstone. "Psychological Examinations, 1940 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

16) ———. "Psychological Examinations, 1941 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

17) ———. "Psychological Examination for College Freshmen 1942 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

18) ———. "Psychological Examination for College Freshmen 1943 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

19) ———. "Psychological Examination for College Freshmen 1944 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

20) ———. "Psychological Examination for College Freshmen 1945 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

21) ———. "Psychological Examination for College Freshmen 1946 Norms." *Amer. Counc. Educ. Stud.*, Washington, D. C.

22) P. A. Witty. "Only and intermediate children in the senior high school." *J. Exper. Psychol.*, 1937–38, 6, 180–186.

THE INTELLIGENCE OF MUSIC STUDENTS

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The prevalence of musical talent exhibited in persons of genius is frequently taken to indicate a close relation between musicianship and superior intellectual capacities. Famous examples include Einstein, the violin virtuoso, and Paderewski, the Premier of Poland. Schoen[8] says there is evidence that, in intelligence, the musically talented person ranks above the average. Seashore[9,11] points out that the distribution of intelligence in musical activities is probably analogous to the distribution of intelligence in any field, and that the musical profession makes as high a demand upon the intelligence as any other profession. Mursell,[4] reviewing the investigations made prior to 1937, concludes that there is no significant relationship between scores on intelligence tests and the results of tests of musical talent, but, when other criteria than talent tests are used, the picture is different. He states that when functional criteria of musicality are employed such as teachers' estimates, grades, scholarship, and professional success, musical ability is found to be positively related to intelligence, with correlations ranging from .42 to .75.

It is a common conjecture among educators that music students are, in general, a superior group. Antrim[1] cites a study covering a thirty-year period at Magdalen College, Oxford University. He states that, while only ten per cent of the students studied music, the music students won seventy-five per cent of all the prizes and scholarships offered by the college. Antrim also states that the IQ's for music students at the New York City High School of Music and Arts averages eleven per cent higher than the general level for students in other New York schools. Platt[7] compared the ACE psychological scores of music and non-music groups of college freshmen. Her results show the gross scores on the psychological test are 6.33 (CR 2.3) points higher for the music students. She also found that music students rated 4.61 (CR 3.8) points higher on mathematics test scores.

Taylor[12] studied the prognostic value of twenty-two music tests, and the value of the Detroit Advanced Intelligence Test

for predicting success of college music students. She found that intelligence ratings correlated .430 with achievement in sight-singing, .585 with music diction, .299 with harmony, and .021 with history of music courses. In studying the prognosis of professional success, she found that intelligence correlated .501 with professors' estimates of talent, .518 with academic music success, and .541 with 'application.' Seashore[10] states that rating on intelligence, as a supplement to measurement of musical talent, is one of the best indices for the prediction of success in musical education and musical career.

The purpose of this investigation is to determine (1) where music students fit into the hierarchy of intelligence among university students, and (2) to what extent music and non-music majors differ in intellectual capacities. Data for this study were taken from the results of placement tests administered to entering freshmen at the University of Miami. The data is on file at the University's Guidance Center, where the placement and guidance program of all entering students is handled. The American Council on Education (ACE) psychological ratings and reading scores* of two hundred eighty-eight candidates for the Bachelor of Music degree are compared with the ACE ratings for students enrolled in the Science, Liberal Arts, Business Administration, and Education schools. Of the two hundred eighty-eight music students, approximately thirty-seven per cent received scholarships. Although the degree of talent is not necessarily measured by the number of scholarships, it does indicate that over a third of the group were recognized musically on the basis of their previous accomplishments. It seems reasonable to assume that university students choosing to study for degrees in music form a representative group of musically talented individuals.

Previous studies on the intelligence and reading ability of University of Miami students† have shown that a hierarchy of aptitude exists among the various curricula. Students in the Education School make lower ratings on the ACE Psychological Examination than students in science, liberal arts or business. However, the differences in intelligence among the various

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* From ACE Coöperative English Test, Higher Level.

† See Wheeler.[13,14,15]

schools, and between the academic and non-academic (physical education) majors, were found to be due largely to the linguistic rather than the quantitative phases of the ACE tests. A high degree of relationship was found between reading skill and the linguistic psychological scores ($r = .70 \pm .012$), and a low relationship between reading ability and quantitative scores ($r = .36 \pm .021$). The results of these studies indicate that whatever

TABLE I.—THE MEAN READING AND INTELLIGENCE SCORES OF UNIVERSITY FRESHMEN ENROLLED IN SCIENCE, LIBERAL ARTS, BUSINESS ADMINISTRATION, MUSIC AND EDUCATION SCHOOLS

Schools	No. of Cases	ACE Total Reading Scores		ACE Psychological Scores					
				Linguistic		Quantitative		Gross	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Science	507	55.98	8.80	62.99	13.65	40.04	10.71	103.39	24.79
Lib. Arts	517	57.37	8.45	64.57	15.76	38.05	11.26	101.42	24.00
Business	544	54.94	7.29	61.87	14.50	38.90	11.06	99.72	23.08
Music	288	55.11	9.42	60.37	16.05	36.73	11.68	96.31	24.22
Education	113	51.43	7.47	51.03	16.84	32.53	12.47	82.47	25.45

hierarchy of intelligence exists in the various curricular fields may be due largely to differences in reading abilities rather than to differences in general intellectual ability.

Table I shows the mean reading and psychological scores of 1969 freshmen enrolled in the various curricula at the University of Miami. In both reading ability and psychological ratings the music students appear to be somewhat superior to the education students. The differences between the various schools may be analyzed from Table II. In reading ability the music students are 2.26 points below liberal arts students, and 3.68 points above education students. The critical ratios indicate these are significant differences. Music students apparently read as well as the business and science students, and music students meet the ACE norms for reading achievement at the freshmen level. The differences in psychological scores indicate that

liberal arts students are 4.20 points above music students in linguistic abilities, but show no significant differences on quantitative items of the test. The gross scores, which are weighted in favor of the linguistic items, show that liberal arts students are 5.11 points above music students. There is a smaller, but probably significant, difference between science and music

TABLE II.—THE DIFFERENCES BETWEEN MUSIC SCHOOL STUDENTS AND STUDENTS ENROLLED IN LIBERAL ARTS, SCIENCE, BUSINESS ADMINISTRATION, AND EDUCATION SCHOOLS IN RESPECT TO READING AND INTELLIGENCE

Music students compared with students in:	ACE Total Reading		ACE Psychological Scores					
			Linguistic		Quantitative		Gross	
	Mean Difference	CR	Mean Difference	CR	Mean Difference	CR	Mean Difference	CR
Liberal Arts	2.26	3.38	4.20	3.58	1.32	1.56	5.11	3.60
Science	.87	1.28	2.62	2.33	3.31	3.93	7.08	5.14
Business	.17	.26	1.50	1.32	2.17	2.57	3.41	2.49
Education	3.68*	4.11	9.34*	4.93	4.20*	3.09	13.84*	5.56

* Difference in favor of music students.

students in linguistic ability. On quantitative phases of the psychological test, the science students have a definite advantage over the music students, and the gross scores indicate that science students rate 7.08 points higher than music students. No significant difference appears in linguistic intelligence between music and business students. Business students rate 2.17 points higher than music students in quantitative abilities, and probably 3.41 points above in gross scores. Education students are significantly below music students on all phases of the psychological test, the greatest differences appearing on the linguistic (9.34 points) and the gross (13.84 points) scores. When the education students were divided into academic and non-academic

(physical education) majors, it was found that the differences in reading ability and psychological ratings were due largely to the non-academic students.*

The extent to which reading ability affects the linguistic and gross scores of the ACE Psychological Examination may be found by studying the correlations shown in Table III. Among the music students, reading ability correlated .73 ± .027 with linguistic scores, .50 ± .045 with quantitative scores, and

TABLE III.—READING SCORES CORRELATED WITH THE LINGUISTIC, QUANTITATIVE, AND GROSS PSYCHOLOGICAL SCORES OF UNIVERSITY FRESHMEN

Students	Linguistic and Reading		Quantitative and Reading		Gross Psychological and Reading	
	r	SE	*r*	SE	*r*	SE
Liberal Arts	.69	.023	.42	.036	.68	.024
Science	.65	.026	.38	.052	.79	.016
Music	.73	.027	.50	.045	.72	.028
Business	.74	.019	.30	.040	.61	.025
Education	.72	.045	.45	.085	.63	.057

.72 ± .028 with gross scores. There is a closer relationship between reading and quantitative scores for music students than for the other curricular groups. A higher degree of relationship exists between reading and linguistic scores in all the curricular fields than between reading and quantitative scores. It is expected that a relationship does exist between reading skill and intelligence, as measured by quantitative factors, but that relationship is very low in comparison to the relationship of reading to the linguistic phases of the psychological test.

Since reading skills, which materially affect the results of an intelligence test involving reading situations, may be readily improved by instruction and practice, reading ability is not neces-

* See Wheeler.[13]

sarily synonymous with intelligence. Any interpretations of intelligence as measured by the ACE and similar aptitude tests should be made with certain reservations. Until students have developed reading power somewhere near commensurate with their mental potentialities, psychological tests made up largely of reading situations will give distorted profiles of their true intellectual capacities. This factor may account to some degree for the limited prognostic value of many intelligence tests.

An analysis of the hierarchy of intelligence with respect to reading skills and the quantitative-linguistic factors of the ACE tests reveals that ability to read may be of considerable importance in determining the above so-called 'hierarchy of intelligence' found in this and similar investigations. A similar pattern of test responses is found for linguistic and reading scores; the group of students who make the highest scores on the linguistic phases of the ACE psychological test tend to rank highest on the reading test, and *vice versa*. The difference between music and education students is considerably smaller on quantitative than on reading and linguistic scores, indicating that, if true difference in intelligence does exist, the difference may be largely in the linguistic-reading areas. Other investigators, as reviewed by Mursell,[4] have observed a close relationship between musical talent and linguistic abilities. Hrarbar-Passek[3] found musicality correlates .75 with 'ability with the venacular.' Pannenborg[6] states that the highly musical exhibit a distinct superiority in linguistic achievement. Feis,[2] reporting the biographies of distinguished musicians, emphasizes the prevalence of linguistic and mathematical abilities.

The findings in this investigation do not agree with Antrim, Platt, and others who have indicated that music students are superior in intelligence to non-music groups. Perhaps this discrepancy is due to the selective factor. It was assumed, in this study, that music-school students, as a group, are superior in musical talent to the non-music curricular groups. Further study is needed to determine the degree of musicality possessed by the liberal arts, science, education and business students. Perhaps many of the musically talented among the university population have chosen to develop fields of study other than music. It is also very likely that, during the orientation period,

students may change their courses of study to other fields. The degree of musical talent probably can best be measured by academic and professional successes. Further study should be made before reaching any conclusions as to the relationship of musicality and intelligence among university students.

SUMMARY

Comparisons of the results of the ACE reading and psychological scores were made for 1969 freshmen enrolled in the Liberal Arts, Science, Business Administration, Music and Education schools at the University of Miami to determine (1) where music students fit into the hierarchy of intelligence among university students and (2) to what extent music and non-music majors differ in intellectual capacities. The results of this study indicate that:

1) Music students are not superior in intelligence to students who have chosen liberal arts, science, or business courses.

2) Music students appear superior in intelligence to education students, especially the non-academic (physical education) majors.

3) In reading and linguistic ability, liberal arts students are superior to music students, but no substantial difference is shown between music and liberal arts students on quantitative phases of intelligence.

4) Science students rank higher than music students in quantitative intelligence, and probably slightly higher in linguistic abilities. No difference in reading ability appears between science and music students.

5) No significant differences in reading or in linguistic abilities appear between music and business students. Business students seem to have a slight advantage over music students on quantitative aspects of intelligence.

6) The superiority of music students to education majors appears largely in the linguistic-reading areas, and might be materially influenced by inadequately developed reading skills of the education group, especially among the non-academic majors.

7) In this study, music students were not found to be superior to non-music students in intelligence and reading ability. This is not in agreement with other investigators. The discrepancy

may be due to the selective factor, and further study is needed before reaching any conclusions as to the relationship of musicality and intelligence.

REFERENCES

1) Doron K. Antrim. "Do Musical Talents Have Higher Intelligence?" *Etude*, 63: 127–8, March 1945.

2) Oswald Feis. *Studien über die Genealogie und Psychologie der Musiker.* J. F. Bergman, Wiesbaden, 1910.

3) Marie Hrarbar-Passek. "Verhältnis der Musikalität zu der Schulbegabung." *Psychotechnische Zeitschrift*, 4: 15–116, 1928.

4) James L. Mursell. *The Psychology of Music.* New York: W. W. Norton, 1937, pp. 335–340.

5) Adolph Otterstein. *Prognosis of Music Students in the San Jose State College*, Stanford University, Master's Thesis, 1933.

6) H. J. Pannenborg and W. A. Pannenborg. "Die Psychologie des Musikers." *Zeitschrift für Psychologie*, 73: 91–136, 1915.

7) Harriet Platt. *A Survey of Music and Non-music College Freshmen.* Syracuse University, Master's Thesis, 1942.

8) Max Schoen. *The Psychology of Music.* New York: Ronald Press, 1940, pp. 164–165.

9) Carl E. Seashore. "Musical Intelligence." *Music Educators' Journal*, 24: 33, March 1938.

10) ———. *In Search of Beauty in Music.* New York: Ronald Press, 1947, p. 252.

11) ———. *Psychology of Music.* New York: McGraw-Hill, 1938, pp. 173–177.

12) Elizabeth M. Taylor. "A Study in the Prognosis of Musical Talent." *Journal of Experimental Education*, 10: 1–28, September 1941.

13) Lester R. Wheeler and Viola D. Wheeler. "The Relationship between Reading Ability and Intelligence Among University Freshmen." *Journal of Educational Psychology*, 40: 230–239, April 1949.

14) Lester R. Wheeler. "Summary of a Study of the Intelligence of University of Miami Freshmen." *Journal of Educational Research*, 43: 307–9, December 1949.

15) ———. "The Relation of Reading to Intelligence." *School and Society*, 70: 225–227, October 8, 1949.

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CITIZENSHIP ATTITUDES OF GRADUATED SENIORS AT PURDUE UNIVERSITY, U. S. COLLEGE GRADUATES AND HIGH-SCHOOL PUPILS*

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Early in 1947 the Research Department of *Time Magazine* planned an extensive survey of the nation's college graduates.[2] When *Time's* editors asked college presidents for ideas about what to put in its questionnaire, the reply was, "Tell us what kind of citizens our graduates have become." Many colleges and universities are now planning or conducting general education programs whose expressed general objective is to help students meet the problems of everyday life or to become 'good or intelligent citizens,' besides enabling them to prepare for economically productive lives through academic specialization. Does a program of general studies lead to, or is it in any direct way connected with 'good or intelligent citizenship?' Briefly let us look at *Time's* experience with their thirteen-page questionnaire filled out by more than 9,000 college graduates throughout the country.

Included in *Time's* questionnaire were several scales developed by C. R. Pace of Syracuse University, designed to measure activities and opinions related to citizenship. Four opinion scales, each containing six statements, were labelled Politics, Government, Civic Relations and The World. Thirty to forty experts—professors of history, economics, political science, sociology, public administration and education—independently expressed their own opinions about the list of statements indicating whether they agreed, disagreed or had no opinion on each statement. For those twenty-four statements finally included in the four scales, the responses of these experts agreed at least two to one. The score on each scale was the number of items on which one's opinion agreed with the opinion of the experts.

Typical opinion scale items, one from each scale, were as follows:

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* Presented at the Midwestern Psychological Association meetings, Detroit, Michigan, May 5, 1950.

Do you agree, disagree or have you no opinion that:

Sending letters and telegrams to congressmen has little influence on legislation? (Politics)

Democracy depends fundamentally on the existence of free business enterprise? (Government)

Agitators and trouble-makers are more likely to be foreign-born citizens than native Americans? (Civic Relations)

We are not likely to have lasting peace until the U. S. and its allies are stronger than all the other countries? (World)

The experts disagreed, it so happens, with all four of these sample items.

Pace was particularly interested in hypothesizing about the relationship between type of education and subsequent citizenship activities and opinions. His tentative interpretation of *Time* results was that men and women who said that their college work had been "mostly generalized education" engaged in significantly more social-civic activities and exhibited a significantly more desirable pattern of attitudes on all four citizenship scales than did those who said their college work had been "mostly specific training for an occupation." This same conclusion was supported by comparing the responses of graduates from seventeen selected top-ranking technical schools with the responses of Ivy League and Big Ten college graduates. Both Ivy League and Big Ten graduates were significantly higher than technical school graduates on all four of the opinion scales. The data favored liberal or general education as against predominantly technical education, as far as citizenship attitudes and activities, as measured, were concerned.[2]

With this background we come to the studies we have conducted with these scales, our purpose being to corroborate and extend Pace's preliminary findings concerning the relationship between citizenship attitudes and schooling. Borrowing some of the items of *Time Magazine* and Pace, we developed a single scale for use in determining the citizenship attitudes of teenagers in high school. Since the original items were worded for a highly-educated adult level, several were considered not suitable for use with high-school pupils. We selected fourteen of the Pace questions from all four scales and developed twelve of our own, dealing with similar topics, to administer to a high-school sample. A biserial item-analysis on the responses of a sample of

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high-school pupils produced a nineteen-item scale, to provide a single and (we hoped) not too ambiguous criterion measure of citizenship attitudes. In any case, its internal consistency reliability with nine hundred sixty high-school pupils was .77, using Kuder-Richardson Formula Case II, and .66 with about six hundred Purdue Seniors, using Case III.[1]

We also administered our scale to engineering and science seniors at Purdue University in June, 1949. Engineering curricula at Purdue are heavily loaded with technical courses, while the Science curriculum includes several courses in government and history and modern languages besides offering much more leeway in the way of electives. Mechanical engineers at Purdue, for example, are required to take, roughly, one hundred ten hours of technical subjects and but twenty-seven hours of English, economics, psychology and other non-technical electives. On the other hand, what has been called the General Science curriculum, "providing both introductory and advanced courses in the various fields of science essential to a broad education," requires forty-two hours of English, speech, modern languages and social sciences; about thirty-three hours of science and mathematics; and sixty-nine hours of electives, many of which would be in non-technical areas.

In administering this scale to groups of Purdue Science, Mechanical and Civil Engineering students, we also obtained certain items of personal information. Each subject was scored on a scale devised to measure the quality of home environment. In the scale were questions as to whether the subject had certain material possessions in his home, how far his father went in school, and whether the student had private lessons in art, music, etc. We wished to examine the differences between Science and Engineering students, taking into account some measure of home environment such as this scale gave. We used for this purpose a non-orthogonal case of analysis of variance, involving a two-factor design with disproportionate frequencies in the cells, following a pattern set up by Tsao.[3] This way we examined the relationship between scores on the criterion variable and school in the University, controlling the factor of home environment without losing cases from the original sample. We made the assumption that the disproportionate cell frequencies in our sample were the result of characteristics inherent in the classi-

ficatory factors to be studied, and not the result of chance sampling effects. We could then infer to a population whose cell frequencies are stratified approximately as are those in our sample.

The mean score of one hundred one male Science seniors on the attitude scale was 14.22 as compared to a mean score of 13.10 for three hundred sixty-three Mechanical and Civil Engineering seniors, a difference significant at better than the one per cent level. At Purdue University, at least, we could conclude that the citizenship attitudes of Purdue's 'General Education' college graduates, even though basically in the field of natural science and not liberal arts or the humanities, are on the average shown to be more acceptable (at least to social scientists) than are the attitudes of engineering graduates.

The Purdue Seniors had also been asked to supply information about the type of education their fathers had had in college, if their fathers had gone to college. Of one hundred two engineering students whose fathers had attended college, about eighty per cent had had specialized education. Of thirty-four Science students whose fathers had attended college, about sixty-six per cent had had specialized education. Again using all cases available and controlling on the type of education of the father, the Science students obtained a mean of 14.94 as compared to a mean of 13.10 for the Engineers, a difference significant at better than the one per cent level.

A few months earlier we had administered this scale to about twelve thousand high-school pupils throughout the country in connection with the *Purdue Opinion Panel*, from which sample we selected a group of pupils whose fathers had attended college in order to test the hypothesis that parental attitudes as related to type of education would carry over to their children. Our analysis consisted of a factorial design involving a dichotomization of each of four factors: type of education received in college by the pupils' fathers (general or specialized), level of home environment, sex, and grade in school. Again giving the results briefly, those pupils whose fathers had had general education in college had better citizenship attitudes than those whose college work had been specialized when sex, grade and home environment was held constant. This difference was significant at about the two and one-half per cent level, thus supporting the hypothesis.

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In conclusion, the results indicate that the citizenship attitudes of individuals exposed directly or indirectly to general education are better than the attitudes of persons exposed to specialized education. Is this because of the schooling received or because of some factor or combination of factors that caused both the attitudes and the selection of the curriculum? In three statistical studies conducted on two populations we have been unable to find factors related to these citizenship attitudes that reduce to insignificance the difference presumably associated with type of college education. With our national high-school population the expressed citizenship attitudes are related to both type of fathers' education if the father has attended college, and the pupil's material possessions at home plus certain of the home's cultural influences. On the other hand, in the case of the individual attending Purdue's Schools of Science or Engineering, the expressed citizenship attitudes are found to bear a significant relationship only to the type of curriculum taken and not to these same home factors.

If, now, we infer that the results described here in favor of general education come about through actual educational influences of the college curricula, the simplest explanation may be the obvious one that the attitudes measured by these scales are the effect of the actual content and objectives of the general education curriculum, and that at least in part these objectives are being achieved.

The implications of such studies have been well expressed by Pace. "Thus research," he says, "lends its support to the current and widespread efforts in many colleges to bring greater unity of purpose and design in curricula directly oriented toward the goals of general education for life in our times. For the technical and specialized college, the data give encouragement to the efforts of those who advocate that a broader band of general studies needs to be interwoven with the more specialized studies."[2]

REFERENCES

1) Dorothy Adkins, *Construction and Analysis of Achievement Tests*, Washington: U. S. Government Printing Office, 1947, p. 154.

2) C. R. Pace, "What kind of citizens have our college graduates become?" *J. gen. Educ.*, 1949, 3, 197–202.

3) F. Tsao, "General solution of the analysis of variance and covariance in the case of unequal or disproportionate numbers of observations in the subclasses." *Psychometrika*, 1946, 11, 107–128.

ON METHODS OF TEACHING ELEMENTARY PSYCHOLOGY

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In 1933 Remmers[4] carried on a detailed and careful comparison of three methods of teaching the introductory course in psychology. The three procedures studied were: 'recitation' sections of approximately thirty-five students which met three times a week for lectures and discussion; 'lecture, recitation' groups of approximately one hundred fifty students which met twice a week as a unit for lectures and once a week in smaller numbers of about thirty-five for discussion; and 'lecture' groups comprising one hundred fifty students which met for lectures three times a week. Criteria used in the evaluation of these teaching techniques were concerned with measures of achievement, degree of retention, cost of instruction, and student attitude to the different teaching methods. Briefly stated the findings may be said to point to the logic of using the 'lecture' method. In connection with attitude to any specific mode of instruction, Remmers states that students tend to favor the method by which they are being taught. It is however clear from the data that individuals being taught by the 'lecture' method do not favor it as strongly as others favor the methods by which they are being taught. The choice of teaching technique for those being taught by the 'lecture' method was "immaterial." In addition to this indifferent attitude it is important to note that the complaint most frequently made of the 'lecture' procedure was that there was "no chance for discussion." Because of these two shortcomings of the 'lecture' method, i.e., indifference and lack of opportunity for discussion, a fourth method by which elementary psychology might be taught was considered: namely, a 'lecture-discussion' technique. This method combined the advantage of the smaller section, i.e., discussion, with the advantages (or the lack of disadvantages) indicated by Remmers of the larger group. Interest was focused on three aspects of this fourth method—student opinion, student participation, and lecturer reaction.

The data to be reported were obtained during three different terms from a second course (fifteen weeks) in elementary psy-

chology. The classes were approximately evenly divided as to sex, and comprised one hundred fifty – one hundred seventy-five students who were chiefly sophomores and juniors in the College of Arts and Science. All data reported were obtained by the use of questionaires which ensured complete anonymity and which were administered toward the end of the term.

STUDENT OPINION

Two methods of teaching already described were compared, i.e., the 'lecture, recitation' and the 'lecture-discussion' techniques. In class A (N:173) which had been taught by the 'lecture, recitation' method in their first course and were being taught by the same procedure in their second course sixty-three per cent stated that they would prefer a 'lecture-discussion' system. This particular method had been defined for them in accordance with the characteristics mentioned above. The lecturer was careful not to indicate any opinion on the merits or demerits of such a choice and, furthermore, not having taught by the 'lecture-discussion' method, was uncertain himself of the answer. Class A's appraisal of the worth of recitation sections described them as of "little value" (those favoring a 'lecture-discussion' method gave them a slightly poorer and those favoring a 'lecture, recitation' a slightly better rating). Classes B (N:162) and C (N:152) were taught by the 'lecture, recitation' method in their first course and were being taught by the 'lecture-discussion' procedure in their second course. When these two groups were asked the same question as Class A, i.e., which method of instruction they preferred, seventy per cent and eighty-nine per cent, respectively, indicated a preference for the 'lecture-discussion' technique. Analysis of the data indicated a slight but not significant trend for those with higher marks to favor the 'lecture-discussion' procedure (of the six students with A averages for the previous term all preferred this latter method).

An important point to be noticed, in evaluating and comparing the above data with that of Remmers, is that in the latter study the instructor in charge of the lectures given in the 'lecture, recitation' method was also in charge of the recitation sections. In the present study recitation sections were in charge of graduate assistants, a situation more frequently the rule, as shown by Buxton's[2] findings that in nineteen of twenty-nine large depart-

ments of psychology answering his queries, graduate assistants were in charge of such sections. It is conceivable then that the results favoring the 'lecture-discussion' technique were a reaction against recitation sections in charge of assistants. Possible reasons for such a reaction are many. It is not, in the writer's opinion, due to the use of poor assistants. On the basis of observation and evaluation guides (put out by the students and for the students) the assistants involved were not essentially different from former assistants, from assistants in other departments, and in all likelihood from assistants in other colleges and universities. They are, through no fault of their own, poorly prepared to handle recitation sections because of inadequate supervision. Clearly, assistants need systematic courses in the teaching of psychology rather than the haphazard procedure of having the professor in charge 'talk things over' or 'drop in' at recitations now and then. This is not to imply that such courses make 'good' teachers, but rather that it makes the individual a slightly better teacher than he would otherwise be. The disinterest encountered when one attempts to implement such a program is essentially due to the fact that efficient teaching is at best but a secondary consideration in many of our large universities today.

Conditions in the present investigation did not permit the use of as rigorous controls as those employed by Remmers. The different methods of teaching compared here, were not, as would have been desirable, taught by the same person. In classes B and C two different instructors were involved in the first course which used the 'lecture, recitation' system and a third instructor in the second course taught by the 'lecture-discussion' method. In class A the students were asked to judge an alternative method to the one they had been taught by in the first course (by a fourth instructor) or were being taught by in their second course. In the latter class the rôle of the particular lecturer is not seemingly as important. Nevertheless results for all classes were similar. Although different courses were involved in the different methods of teaching, both courses were part of elementary psychology and did not, as shown by grades, differ in difficulty. Regardless of the varied climatological factors that may influence student judgment, the minimal argument may be made that a 'lecture-discussion' method can be successful.

STUDENT PARTICIPATION

Buxton[1] believes that group discussion is a casualty of present-day teaching conditions, although he along with Husband[3] and Remmers[4] feels that this is largely compensated for by 'good' lectures. Such lectures they believe are more likely to result when the instructor is faced by a 'large audience,' prepares more carefully and is less prone to stall. Implicit in Buxton's belief is a possible objection to the 'lecture-discussion' technique; namely, that students in large classes will be less inclined to participate in discussion than they would in small groups, and therefore in a large class participation is not possible.

In class A reports from assistant indicated that thirty-five per cent of the students asked questions or participated in discussions during recitations. In classes B and C responses to a similar query, this time regarding participation during the large lecture sessions, gave figures of thirty-three per cent and forty-three per cent, respectively. In both the small and large groups discussion was pointed up but questions were not asked of specific individuals. (In only this sense was the attempt made to equate the qualitative effort of eliciting questions.) The further question that may be asked concerning the quality of the questions raised in both types of groups is difficult to answer, let alone test. It is the writer's opinion, based on his own observations as well as discussion with assistants that a difference is not present. Student participation seems as possible in the large as well as in the small section.

A further question was asked of those members of the class C who had indicated that they had not participated in class discussion; namely, would they have done so in a smaller group? Fifty-five per cent (forty-eight students) answered affirmatively, but whether they actually would have done so or were rationalizing a vaguely felt inadequacy remains problematical. It is also conceivable that there might be some students who would not participate in the small group and to whom the anonymity of the large class functions in a permissive manner. (A cross comparison of answers in class C to the question of class participation and method of instruction preferred gave the expected results, i.e., those who preferred a 'lecture, recitation' system

tend to a greater extent than those favoring a 'lecture-discussion' method, to refrain from participation in the large lecture room.)

LECTURER REACTION

From the viewpoint of the lecturer, the encouraging of class discussion and the permitting of questions raise many points regarding effective techniques of teaching. It is necessary to answer questions from as many different students as possible, to ration the 'eager beaver' to rule out tangential questions and, in the final analysis, not to spend too much or too little time in discussion or in answering questions. Whether one is succeeding in utilizing the proper amount of time can be answered in part by observing minimal cues from the class—often not so minimal—and by the simple expedient of questioning the class. (In class C the writer did this and was reassured by finding that eighty-nine per cent of the class checked the statement, "Approximately the proper amount of time is being used for discussion and answering questions.") In general the writer would say that he found the give-and-take of the 'lecture-discussion' procedure far more personally satisfying than the give-and-let-the-assistant-take, of the 'lecture, recitation' method.

CONCLUSION

In conclusion the writer would argue that the traditional use of the 'lecture, recitation' method of teaching elementary psychology needs closer scrutiny as to its purpose and effectiveness and that a 'lecture-discussion' technique with a large class, as shown by student attitude and participation, can be successful.

REFERENCES

1) C. E. Buxton, "Planning the introductory psychology course." *Amer. Psychologist*, 1946, 1, 303–311.

2) ———. "The pros and cons of training for college teachers of psychology." *Amer. Psychologist*, 1949, 4, 414–417.

3) R. W. Husband, "A statistical comparison of the efficacy of large lecture versus smaller recitation sections upon achievement in general psychology." *Amer. Psychologist*, 1949, 4, 216 (abstract)

4) H. H. Remmers, "Learning, effort, and attitudes as affected by three methods of instruction in elementary psychology." *Bull. Purdue University.* Studies in Higher Education, 1933, 21, 1–48.

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A STUDENT PROJECT IN EDUCATIONAL PSYCHOLOGY

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Do term papers have real merit for students in educational psychology courses? Probably in the minds of many psychologists, no issue is involved here. Term papers do have value. They enable the student to study more thoroughly some aspect of the subject and to organize his thinking into a coherent form in a term paper; therefore, there should be no question about assigning term papers.

Because the author believed term papers did have merit, he has always required them in educational psychology. There can be no doubt that they can have value, but during the last three years the author has become increasingly skeptical as to whether they did have value in proportion to the time and effort required of both students and instructor at Springfield College. This school is on the term basis, and during the usual college year there are three terms equal in credit to two semesters in other colleges. At Springfield students take three courses of shorter duration for two longer ones taken elsewhere. As a result they write approximately a third more term papers than students do elsewhere, and according to numerous reports many merely copy off papers that have been done by other students in previous years.

Under these circumstances, it seemed to the author that term papers had little value for the students and were an excessive and wasteful burden on the instructor. Twice a year the instructor had a hundred and fifty to about two hundred papers in educational psychology to read at a time when he had the least leisure to read them. Staggering the dead line helped distribute the burden of reading them, but did not reduce it, and there were always students who reasonably complained of the hardship and unfairness of having less time to do a paper than others had.

Here was a problem calling for the application of educational psychology to the author's own course, and in September of 1949 he proposed to the students in the fall term of the course that one or more groups investigate more thoroughly the merits and dis-

advantages of term papers and make recommendations concerning their use in the course in the future.

One group surveyed the opinion of faculty members. They found the faculty fairly evenly divided in opinion. Some never assigned term papers. Some always did. Some considered them useless; others, essential.

Another group investigated student opinion and made recommendations that have helped to clarify our own thinking on the subject. Their report is submitted to illustrate how undergraduates can do research projects of merit within the drastic limit set by a ten-week term.

To get at the attitudes of students, a committee of four students formulated the following questionnaire and submitted it to one hundred forty-eight students in educational psychology.

EVALUATION OF TERM PAPER

1) What is your first reaction when you have a term paper assigned?

2) Have you ever borrowed a term paper? Have you ever written one?

3) Do you believe that there is educational value in a term paper? Is the value worth the time you devote to it?

4) Should term papers be optional? If optional, what value should they receive?

5) Do you recommend anything in place of a term paper? If so, what?

The students in general were interested and coöperated in a thoughtful way with the committee. There is evidence that some attitude surveys made in colleges (and published) are of questionable validity because of the widespread antagonism felt by the students toward the surveys. In this instance the committee felt that the students had expressed their real convictions because they believed their opinions would make a difference in what would be done in the future. They understood what the issue was and were concerned about its outcome.

SUMMARY OF REPLIES

1) What is your first reaction when you have a term paper assigned? (They were told to put down their first reaction when such an assignment was made.) The figures in parentheses indicate how often a given reply was made.

More work to be done. (54) Nuts. (33) Think of the work involved and where to find the time. (15) What a bore. (11) Where can I get a paper he likes? (10) Decide what to write on and where to locate the material. (7) Depends on interest in the topic. (3) A chance to get a good mark if good work is done. (3) A requirement that will make one delve into the subject. (2) A poor way to stimulate thinking. (1) Doesn't mean anything until I start to write it. (1)

The majority of students consider the term paper as just extra work. There was a definitely negative response.

2) Have you ever borrowed a term paper? This question was ambiguous. Some interpreted borrowing to mean copying; others, merely borrowing without copying. The majority have borrowed papers, and almost all have written their own papers at times. Eighty-three replied 'Yes' and 68 answered 'No.' One hundred forty-five reported that they had written term papers, and three said 'No.'

3) Do you believe there is educational value in a term paper? Yes (102), No (23), Some (17).

Is the value worth the time you devote to it? Yes (44), No (57), Sometimes (32), Grade doesn't equal effort (3), If it is interesting (8), If it will be useful later on (2), If there is enough time (2).

Most students do not feel the value is worth the time.

4) Should term papers be optional? Yes (112), No (31), Depends on course (4).

If optional, what value should be placed on it? Raise grade (12), Raise grade if borderline (29), Raise grade one mark (14), Student should be satisfied with value he gets out of doing the paper (7). Cannot get an A without paper (3), Count as much as mid-term (2), Depends on course (1), Should be averaged in (1), Class should decide value (1), Five to eight points added to final for A paper (1), If good, help grade; bad, lower (1).

5) Do you recommend anything in place of a term paper? If so, what? Projects (45), Oral reports (5), Field work, observation of teaching (7), An extra test (4), Extra reading (3), Book reports (2), Essay on final giving personal experience (1), Group papers (1), Panel discussion (1), Practice teaching in front of class (1).

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CONCLUSIONS AND RECOMMENDATIONS

The group agreed that since educational psychology is a three-semester-hour course, some form of additional work should be required, but it should not be limited to a term paper. Due to the lack of interest, some students resort to copying term papers which has no educational value whatsoever. Some, too, are incapable of expressing what they have learned effectively on paper, but those who wish to do term papers should be allowed to do so. This will not completely eliminate copying, but will give those students who have the interest and ability in this type of work the opportunity to present term papers.

As an alternative to a term paper, the committee recommended observation and criticism of field situations. They felt that this type of work should be done by individuals rather than groups and that it should be carried out on elementary- or high-school classes. Furthermore, the observer should pay particular attention to the psychological aspects of the methods being observed.

Group projects, forums, and individual oral reports were also recommended, to be evaluated as follows: Persons receiving A's would be given 10 points to add to their final grade; those getting B's, 7 points; C's, 5 points; and those receiving D's, 3. Students who turn in failing work should have nothing added.

These conclusions were then reported to the class by the committee, and there followed a lively discussion. The committee answered questions, defended conclusions, and cleared up misunderstandings. There was no doubt about the interest of the class. This was no report by students substituting for the instructor. All had participated in the investigation in one way or another, and all (including the instructor) were involved in its conclusions.

The committee was composed of students with active and inquiring minds, but they all agreed that as they progressed with their investigation, they learned a good deal about thinking constructively together so as to advance their problem, and they developed far more interest than they had had in the course. They also became aware of weaknesses in their reasoning. They realized that one of the items was ambiguous, and that their findings were not necessarily applicable to other institutions.

The project had these definite limitations. Other more impeccably conducted scientific investigations have similar limitations without possessing the corresponding value. This little student project has already made a difference in the instructor's handling the course. Too often competent research on attitudes is a sterile sort of thing that makes no difference in what is done. Indeed, it is often undertaken with no thought of obtaining guidance concerning any practical or immediate problem.

Attitudes toward democracy or minorities are surveyed with monotonous frequency with apparently no purpose except that of providing an instructor with material for publication. When these attitude surveys are undertaken with the purpose of modifying course offerings or methods used in existing courses, they will begin to justify the time given them at meetings of various psychological associations as well as space provided for their publication in journals—not to mention the original effort and time required not only of the students but the investigator.

This project grew out of a need and it did provide the instructor with guidance that he needed. He learned from the project that his students interpreted the assignment of a term paper to mean only involving library work, and was thus able to clarify a misunderstanding. To summarize, this little student 'research' illustrates how fairly crude techniques on a real problem can have value for the undergraduates who do the work, real interest for the class, and guidance for the instructor.

BOOK REVIEWS

AUGUST B. HOLLINGSHEAD. *Elmtown's Youth: The Impact of Social Classes on Adolescents.* New York: John Wiley and Sons, 1949, pp. 480.

This volume is the result of a study made by Professor Hollingshead in 1941 and 1942 to test the hypothesis that "the social behavior of adolescents is related functionally to the position their families occupy in the social structure of the community." Data was secured on seven hundred thirty-five boys and girls between the ages of thirteen and nineteen in Elmtown, a stable Middle Western town-country community with a population of approximately 10,000.

Hollingshead used a carefully worked out rating procedure technique to determine the class placement of the adolescent's family after establishing that there existed consensus about the number of classes and class placement of twenty families used as a control list. In contrast to a number of social stratification studies the reader can clearly follow step-by-step the procedures used to determine class placement and Hollingshead presents a convincing case for the existence of five prestige classes in Elmtown.

A number of findings in regard to the impact of social class on adolescent behavior are reported. Students in lower class families frequently believe that grades are the resultant of class position rather than ability. Participation in parties, plays, athletic events and musical activities tend to be positively associated with class placement. Those elected to the student council disproportionately came from classes I and II.

Hollingshead emphasizes the strong tie between cliques and the class structure. He clearly reveals that the majority of clique and dating relations take place between persons whose parents belong to the same prestige class. Religious participation, too, is associated with class position and the infiltration of the class system into religious clubs is neatly demonstrated. Hollingshead's analysis also discloses the relationship between class placement and high-school attendance. The striking differences in the behavior of those children who attend and do not attend high school are also emphasized.

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In addition, Hollingshead shows how Elmtown neglects to provide community-wide procedures to help the adolescent in his transition from child to adult. Institutions frequently operate at cross purposes. No coördination exists between programs of youth-training agencies with respect to objectives.

In the reviewer's judgment this is one of the best studies in social stratification and its correlates that has appeared in the past fifteen years. Chapter II is an excellent methodological chapter in which crucial problems of the field work are discussed and the technique of stratification fully described. The book clearly reveals that stratification is an important dimension affecting adolescent behavior that educators cannot ignore.

The conclusions of this study, however, need to be tested in other settings, particularly metropolitan communities. Hollingshead's laborious but relatively simple techniques of stratifying the community is obviously not applicable to the metropolitan community with its *gesellschaft* social organization, more impersonalized social relationships and more complicated stratification system.

NEAL GROSS
University of Minnesota

DONALD R. TAFT. *Criminology, A Cultural Interpretation.* New York: The Macmillan Company, 1950, pp. 704.

Crime in our culture is a very important problem for all citizens to understand. For such understanding this sociologically oriented volume, a revision of an earlier volume written in 1942, can serve as an excellent text. The book is presented in five parts. Part I concerns itself with the nature of crime, statistics, historical development; Part II with explanations of crime; Part III with the treatment of the adult criminal; Part IV with treatment of juvenile delinquents and crime prevention; and Part V, the smallest division, is a chapter on the wider implications of criminology which concerns itself with war and crime and the criminal nation. The book contains an index of names and of subjects.

For the specific content of criminology the author banks to a large extent on the writings of Barnes, the Gluecks, W. I. Thomas, Clifford R. Shaw and Sutherland—a distinctly sociological orientation. Less attention is given to Healy and Bronner or

Maude Merril. His viewpoint on the significance of culture hooks up with the attitude expressed in such volumes as Lewis Mumford's *The Culture of Cities* and Thurman W. Arnold's *The Folklore of Capitalism.* The chapter on treatment of juvenile delinquents has been the least revised and in it the more recent researches in the field are omitted. The rest of the volume is, however, brought up to date.

Chief emphasis is on the study of low-class crime. He considers white-collar crime and makes reference to subgroups. His general contention, however, is that subgroups can only throw light on the nature of form of crime rather than give evidence for the cause of it. He considers problems of interest to Psychologists such as the prerelease program which utilizes inmate group discussion and counseling. Crime is considered by him as a product of a culture and he considers what he calls 'criminogenic influences' from that point of view. His treatment of personality is rational and fairly adequate for the purpose, but in his chapter titled "Personality Traits and Crime" he discounts the attitude of Lombroso and Hooten justifiably enough but does not consider adequately present-day knowledge in personality dynamics. Rational and sensible are his treatment of most special phases of the topic, for example, Negro crime and 'foreign' contributions to crime. The idea of criminal types is, of course, not accepted by him. Instead he conceives of individual cases, physical and physiological cases, physical types, mental disease, and personality deviations as helping to explain the immediate effects of crime and contends that rarely do "mere characterizations of personality without knowledge of more basic causes, explain crime."

He is much concerned with the social implications of the knowledge of crime and would like his book to serve the purpose of doing away with the age-old dichotomy of criminal and non-criminal and men of bad will and men of good will. The American culture is perceived by him as being dynamic, complex, materialistic, manifesting a decline in personal relationships which foster crime as well as restricted criminogenic loyalty. Included in the criminogenic influence is our tradition of the American frontier, and also our faith in long punishment as solutions for social problems. He suggests with ample justification the need for reëxamination of values in the general

culture and the consideration in true democratic fashion of their consequences.

All in all, this is a thoroughgoing and sane volume on criminology written chiefly from the point of view of a sociologist who is well-informed about efforts in related fields, and, most of all, who has a sense of reality about the meaning of culture in relationship to the development of crime. It should serve excellently as a text in criminology and also a good reference work for psychologists in the field.

H. MELTZER
Psychological Service Center
St. Louis, Missouri

CATHERINE STERN. *Children Discover Arithmetic: An Introduction to Structural Arithmetic.* New York: Harper and Brothers, 1949, pp. 295.

This new approach, structural arithmetic, is an attempt to put the number system into such concrete form that the child can see and grasp its structure. This approach to teaching arithmetic is based on insight into structural relations. Blocks of different unit lengths are used so it is possible for the child to measure instead of count. This is the basic principle of structural arithmetic. The aim is to allow the child to discover for himself the number relationships that are the basis of arithmetic. For instance, it is readily apparent to a child that "a block 10 units long is the same length as the sum of a 6-block and a 4-block." The author's records "prove that children can enjoy number work before six years of age."

Sections of this treatise are devoted to development of basic number concepts, addition and subtraction, multiplication and division, denominate numbers and fractions, and structure of our number system. Concrete experience with unit blocks "leads directly to the formation of exact mathematical concepts." In manipulating these materials the child gains insight into the structure of the number system and into the meaning and behavior of numbers.

Essentially, this treatise explains a new approach to the mathematical foundation of arithmetic instruction which is in marked contrast to the drill method. The author has used the method with gratifying results. Apparently children take to it

enthusiastically. The method is intriguing and appears psychologically sound. Since it represents a radical change from the traditional drill methods, there will be resistance to adopting it. In any case it seems worthy of more extensive experimental trial by others than the author. If they are as successful as the author, the technique may turn out to be a very important contribution to the teaching of arithmetic.

MILES A. TINKER
University of Minnesota

S. H. BRITT, Editor, *Selected Readings in Social Psychology*, New York: Rinehard and Co., Inc., 1950, pp. 507.

One must agree that this book has a good deal of reading in it for the money. Even so, it is well manufactured and is quite attractive. This book of readings is a compilation of fifty selections taken from well-known books and articles. The selections are organized under the following six headings:

I. Social Psychology and Its Methods; II. Biological and Social Foundations of Behavior; III. Some Individual Factors of Social Adjustment; IV. Behavior in the Presence of Others; V. The Social Psychology of Institutions; VI. Social Conflicts.

"This book is designed to be used in conjunction with textbooks in social psychology," and provides supplemental reading material usually not readily available to large undergraduate classes.

There is to be found a great variety of material. There are reports of experimental research, as by Guthrie on Maturation, Sears on Personality Traits, and by Postman and Bruner on Perception. There are rational and analytical selections, as by Allport and Postman on Rumor, Fransworth on Stereotyping, and by Linton on Imitation. There is material of the Yankee City and Middletown variety. There are selections on race, cultural basis of emotions and gesture, attitude measurement, frustration, humor, effect of an audience on remembering, delinquency, psychological warfare, pecuniary standards of taste and even one or two on statistical method. Represented are authors from psychology, sociology, and anthropology.

There is usually a danger that a collection of short selections of this kind will make for difficult reading for students of the limited background of typical undergraduates. With exception of a

few of the experimental and theoretical articles, this problem seems to have been handled very well. J. B. STROUD
State University of Iowa

ARTHUR WORMHOUDT. *The Demon Lover.* New York: Exposition Press, 1949, pp. 150.

What previously was dismissed as meaningless or oversights on the part of poets acquires a specific meaning if interpreted in the light of modern psychiatry. This is the contention of Dr. Wormhoudt, author of *The Demon Lover* and the sponsoring psychiatrist, Dr. Bergler. In this volume the author attempts to demonstrate his idea of psychoanalysis for the explication of particular works of literature. He selects the works of the romantic poets, Coleridge, Wordsworth, Keats, Shelley, and Byron to analyze. The book starts with an introductory chapter describing the author's interpretation of psychoanalytic concepts which he plans to use in analyzing selected lines from these poets. These poets, we are told, express only defenses against repressed conflicts, not repressed wishes in disguised form. Searching in this manner, what does the author discover?

In each poet he finds a deep, unresolved masochistic attachment to a mother image. Thus in his analysis of Coleridge we are told that Christabel and Coleridge are horrified by the unconscious infantile fantasy of the phallic mother which is a part of the complex which lies at the basis of oral masochism. Coleridge's line from "The Ancient Mariner" reading "For the dear God who loveth us, He made and loveth all." he reacts to in the following way: "The all-inclusive nature of this social ideal of unity, it seems, has its roots in homosexual ties." From Coleridge the author finds no difficulty in finding lines which prove what he wants to prove. With Wordsworth he has a somewhat tougher time because the symbolic meanings are less obvious but he assures us that a knowledge of the biography of Wordsworth gives the cues to the real meaning. By so searching, the author again discovers a masochistic substratum which has primarily been warded off with defensive aggression. Keats, too, in his "Endymion" no matter how different the style is from that of Wordsworth, is also considered psychologically close to him in his efforts to solve "the unconscious conflict with

the pregenital mother image by means of a magic gesture." His analysis of Shelley and Byron are of a similar nature.

The name of the book is taken from a line of poetry by Kubla Khan, "By woman wailing for her demon lover!" The licenses are entirely those taken by the author without anyone's permission. Dr. Bergler, in a very short and reserved forward, gives the author the right to analyze and the reader the right to disagree with the analysis. Leibnitz, Plato, Nietsche, Goethe, and Shakespeare are given credit for appreciating unconscious motivation in literature. Shakespeare's "the poet's eye in a fine frenzy rolling" is interpreted as a witty way of expressing the importance of this motivation. The reviewer cannot help but wonder whether Shakespeare would not find in this book more of "fine frenzy rolling" than he discovered in the poet's eye. For readers who enjoy a literary excursion in how one can take a set of concepts, twist them in the direction he chooses, read them into poetry, and call it psychoanalysis this can serve as an interesting volume. Psychologists will find little here that is likely to add to their understanding of either the poets or poetry, but may learn from it the effects of being analyzed on this particular author and his way of interpreting the literature of romantic poets as a result of it. It might also be relevant at this point to remind the writer of the attitude toward literary criticism expressed by Joseph Wood Krutch who, in effect, says that the primary purpose of art is delight, not super-ingenious searching for images or ambiguities.

H. Meltzer
Psychological Service Center
St. Louis, Missouri

Mary Alice Mitchell. *The Relationship of Reading to the Social Acceptability of Sixth-grade Children.* Contribution to Education, No. 953. New York: Bureau of Publications, Teachers College, Columbia University, 1949, pp. 59.

The hypothesis tested in this study is: The kind of child accepted by his fellows is also the kind of child who reads extensively. The relationship between social acceptability and amount of reading was determined for eight hundred fifty-one sixth-grade children by means of ratings by parents, by teachers and by children. Intelligence and reading skill were also meas-

ured. The appraisals of parents, teachers and children were found not to be highly related. According to children's opinions, the children who read extensively are as socially acceptable as those who do not, and children who do not choose reading as a leisure time activity are more antisocial than those who do. Ratings of teachers indicate that extensive reading is slightly more related to social acceptability than to lack of social acceptability. According to parents, extensive reading is related to neither social acceptability nor to its lack. But parents consider that interest in reading is related to social acceptability. The author's general conclusion is that extensive reading is a significant factor in children's social acceptability and that the data tend to support her hypothesis.

This conclusion is somewhat optimistic in view of the fact that many of the correlations were close to zero. Only one-sixth of them were .30 or larger. Even though a coefficient of .088 is significant at the 1 per cent level, its predictive value is slight. Actually, the author has made an important contribution in demonstrating that social acceptability is little affected by either extensive voluntary reading or lack of it.

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PUBLICATIONS RECEIVED

Adult Education: Current Trends and Practices. Problems in Education, II. Paris (19 Avenue Kleber): UNESCO, 1950, pp. 147. (paper)

THEODORE C. BLEGEN, Chairman. *Counseling Foreign Students.* Washington, D. C.: American Council on Education, 1950, pp. 54. (paper) $0.75.

BENJAMIN S. BLOOM AND LOIS J. BRODER. *Problem-solving Processes of College Students.* Chicago: University of Chicago Press, 1950, pp. 109. $2.75.

WARNER BROWN AND HOWARD C. GILHOUSEN. *College Psychology.* New York: Prentice-Hall Inc., 1950, pp. 507. $3.75.

HADLEY CANTRIL, Editor. Prepared by Mildred Strunk. *Public Opinion* 1935–1946. Princeton, N. J.: Princeton University Press, 1951, pp. 1191. $25.00.

EILEEN CLARK. *A Nursery School Procedure.* New York: The Dalton Schools, Inc., 1949, pp. 96. (paper) $0.75.

LAWRENCE E. COLE AND WILLIAM F. BRUCE. *Educational Psychology.* Yonkers, N. Y.: World Book Co., 1950, pp. 768. $4.50.

MAURICE COLOMBAIN. *Coöperatives and Fundamental Education.* Paris (19 Avenue Kleber): UNESCO, 1950, pp. 171. (paper)

GENEVIEVE L. COY. *Ways towards Self-discipline.* A Study in School Living. New York: The Dalton Schools, Inc., 1950, pp. 95. (paper) $0.75.

FLOYD C. DOCKERAY AND G. GORHAM LANE. *Psychology.* Second Edition. New York: Prentice-Hall, Inc., 1950, pp. 564. $3.75.

JOHN DOLLARD AND NEAL E. MILLER. *Personality and Psychotherapy: An Analysis in Terms of Learning, Thinking, and Culture.* New York: McGraw-Hill Book Co., 1950, pp. 488. $5.00.

WILMA DONAHUE AND DONALD DABELSTEIN, Editors, *Psychological Diagnosis and Counseling of the Adult Blind.* Selected Papers from the Proceedings of the University of Minnesota Conference for the Blind, 1947. New York: American Foundation for the Blind, 1950, pp. 173. $2.00.

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RUTH E. ECKERT, Chairman. *Higher Education in Minnesota.* A Report by the Minnesota Commission on Higher Education. Minneapolis: University of Minnesota Press, 1950, pp. 419. $4.00.

EL-DEMERDASH ABDEL-MEGUID SARHAN. *Interests and Culture.* New York: Bureau of Publications, Teachers College, Columbia University, 1950, pp. 123. $2.35.

CLAUDE M. FUESS. *The College Board: Its First Fifty Years.* New York: Columbia University Press, 1950, pp. 222. $2.75.

F. DOREEN GULLEN. *Traditional Number Rhymes and Games.* London: University of London Press, Ltd., 1950, pp. 144. 5s.

HAROLD GULLIKSEN. *Theory of Mental Tests.* New York: John Wiley & Sons, Inc., 1950, pp. 486. $6.00.

S. A. HAMRIN. *Chats with Teachers about Counseling.* Bloomington, Illinois: McKnight and McKnight Pub. Co., 1950, pp. 226. $3.00.

ELIZABETH F. HELLERSBERG. *The Individual's Relation to Beauty in Our Culture.* Springfield, Illinois: Charles C Thomas, 1950, pp. 140. $3.25.

NORA HODGES. *Community Service in the Dalton School.* New York: The Dalton Schools, Inc., 1949, pp. 64. (paper) $0.75.

LLOYD M. HUGHES. *The Mexican Cultural Mission Programme.* Paris (19 Avenue Kleber): UNESCO, 1950, pp. 76. (paper)

VIOLET M. MCLAREN AND OTHERS. *Studies in Reading.* Volume II. London: University of London Press, Ltd., 1950, pp. 105. 7s, 6d.

WILLIAM J. MICHEELS AND M. RAY KARNES. *Measuring Educational Achievement.* New York: McGraw-Hill Book Co., 1950. pp. 496. $4.50.

NORMAN L. MUNN. *Handbook of Psychological Research on the Rat. An Introduction to Animal Psychology.* Boston: Houghton Mifflin Co., 1950, pp. 598. $7.50.

MAUDE B. MUSE. *Guiding Learning Experience: Principles of Progressive Education Applied to Nursing Education.* New York: The Macmillan Co., 1950, pp. 617. $4.50.

MARGARET NAUMBURG. *Schizophrenic Art: Its Meaning in Psychotherapy.* New York: Grune and Stratton, Inc., 1950, pp. 247. $10.00.

RHODA ORME. *Counseling in Residence Halls.* New York: Bureau of Publications, Teachers College, Columbia University, 1950, pp. 143.

ALISON PETERS. How To Pass College Entrance Tests. New York (480 Lexington Ave): Arco Pub. Co., 1950, pp. 188. $2.50.

KALI PRASAD. *Fatigue and Efficiency in Textile Industry: A Psychological Investigation.* Lucknow, India: Lucknow University, 1950, pp. 34. (paper) 2s, 3d.

DOROTHY M. ROBERTS. *Leadership of Teen-age groups.* New York: Association Press, 1950, pp. 195. $3.00.

MARGARET SELOVER, AGATHA TOWNSEND, ROBERT JACOBS, AND ARTHUR E. TRAXLER. *Introduction to Testing and the Use of Test Results.* New York: Educational Records Bureau, 1950, pp. 107. (paper)

BENJAMIN SHIMBERG. *The Development of a Needs and Problems Inventory for High-school Youth.* Lafayette, Ind.: Purdue University, 1950, pp. 78. (paper)

CALVIN S. SIFFERD. *Residence Hall Counseling.* Bloomington, Illinois: McKnight and McKnight Pub. Co., 1950, pp. 238.

ELIZABETH A. SIMPSON. *SRA Better Reading Book* 2. Chicago: Science Research Associates, 1950, pp. 88. (paper) $1.55.

———. *Instructor's Guide for the SRA Better Reading Books.* Chicago: Science Research Associates, 1950, pp. 27. (paper) $0.25.

C. P. STONE, Editor. *Annual Review of Psychology.* Volume II. 1951. Stanford, Calif.: Annual Reviews, Inc., 1951, pp. 389. $6.00.

D. H. STOTT. *Delinquency and Human Nature.* Dunfermline, Fife, Scotland: Carnegie United Kingdom Trust, 1950, pp. 460. (paper) $1.00.

MILDRED C. TEMPLIN. *The Development of Reasoning in Children with Normal and Defective Hearing.* Minneapolis: The University of Minnesota Press, 1950, pp. 143. $3.00.

PAULINE PARK WILSON. *College Women Who Express Futility.* New York: Bureau of Publications, Teachers College, Columbia University, 1950, pp. 166. $2.75.

C. GILBERT WRENN AND WILLIS E. DUGAN. *Guidance Procedures in High School.* Minneapolis: The University of Minnesota Press, 1950, pp. 71. (paper)

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